Proposed Rules

Federal Register
Vol. 75, No. 63
Friday, April 2, 2010

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 23, 25, 27, and 29

[Docket No. FAA–2010–0224; Notice No. 10–05]

RIN 2120–AJ57

Airworthiness Standards; Electrical and Electronic System Lightning Protection

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The Federal Aviation Administration (FAA) proposes to amend the lightning protection airworthiness standards by establishing new lightning protection regulations for electrical and electronic systems installed on aircraft certificated under parts 23, 27, and 29, and revising lightning protection regulations for electrical and electronic systems installed on airplanes certificated under part 25. The proposed rulemaking would establish two levels of lightning protection for aircraft systems based on consequences of system function failure: Catastrophic consequences which would prevent continued safe flight and landing and hazardous or major consequences which would reduce the capability of the aircraft or the ability of the flightcrew to respond to an adverse operating condition. The proposed rulemaking would also establish lightning protection for aircraft systems according to the aircraft's potential for lightning exposure. Compliance with the new requirements would be based on demonstration of effective lightning protection for electrical and electronic systems. The proposed airworthiness standards would establish consistent lightning protection requirements for electrical and electronic systems.

DATES: Send your comments on or before July 1, 2010.

ADDRESSES: You may send comments identified by Docket Number [Insert docket number, for example, FAA–200X–XXXXX] using any of the following methods:

- *Federal eRulemaking Portal:* Go to *http://www.regulations.gov* and follow the online instructions for sending your comments electronically.
- *Mail:* Send comments to Docket Operations, M–30; U.S. Department of Transportation, 1200 New Jersey Avenue, SE., Room W12–140, West Building Ground Floor, Washington, DC 20590–0001.
- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* Fax comments to Docket Operations at 202–493–2251.

For more information on the rulemaking process, *see* the **SUPPLEMENTARY INFORMATION** section of this document.

Privacy: We will post all comments we receive, without change, to *http://www.regulations.gov,* including any personal information you provide. Using the search function of our docket Web site, anyone can find and read the electronic form of all comments received into any of our dockets, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, *etc.*). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (65 FR 19477–78) or you may visit *http://DocketsInfo.dot.gov.*

Docket: To read background documents or comments received, go to *http://www.regulations.gov* at any time and follow the online instructions for accessing the docket or Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: For technical questions concerning this proposed rule contact Lee Nguyen, AIR–130, Federal Aviation Administration, Suite 4102, 470 L'Enfant Plaza, Washington, DC 20591; telephone (202) 385–4676; facsimile (202) 385–4651, e-mail *lee.nguyen@faa.gov.* For legal questions concerning this proposed rule contact Viola Pando, AGC–220, Federal Aviation Administration, 800 Independence Ave., SW., Washington, DC 20591; telephone (202) 493–5293; facsimile (202) 267–7971, e-mail *viola.pando@faa.gov.*

SUPPLEMENTARY INFORMATION:

Later in this preamble under the Additional Information section, we discuss how you can comment on this proposal and how we will handle your comments. Included in this discussion is related information about the docket, privacy, and the handling of proprietary or confidential business information. We also discuss how you can get a copy of related rulemaking documents.

Authority for This Rulemaking

The FAA's authority to issue rules on 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(a)(1). Under that section, the FAA is charged with prescribing regulations to promote safe flight of civil aircraft in air commerce by prescribing minimum standards in the interest of safety for appliances and for the design, material, construction, quality of work, and performance of aircraft, aircraft engines, and propellers. By prescribing standards to protect aircraft electrical and electronic systems from the effects of lightning, this regulation is within the scope of the Administrator's authority.

Background and History

Existing regulations for lightning protection of electrical and electronic systems installed on aircraft certificated under 14 CFR parts 23, 27 and 29 require the type certification applicant only to "consider" the effects of lightning. Unlike system lightning protection regulations for part 25 airplanes, these regulations have not been significantly amended since they were first adopted, and do not reflect current advances in technology.

A. History of Lightning Regulations

In the 1960s, regulations applicable to lightning protection for aircraft design, construction, and fuel systems were adopted for aircraft certificated under

parts 23, 25, 27 and 29. The regulations required that the aircraft be protected against catastrophic effects of lightning, but did not have specific requirements for electrical and electronic system lightning protection. At the time, most aircraft were designed with mechanical systems, or simple electrical and electronic systems. Airframe components were made from aluminum materials, with high electrical conductivity, and offered good protection against lightning.

The early 1980s ushered in part 25 transport airplane designs that routinely included more complex electrical and electronic systems. Flight-critical electronic primary flight controls, electronic primary flight displays, and full-authority electronic engine controls became common on transport airplanes certificated under part 25. At this time, the FAA began to impose lightning protection requirements for critical and essential electrical and electronic systems through special conditions, when appropriate, for part 25 airplane certification projects.

As electrical and electronic systems became more common on part 25 airplanes, the FAA issued § 25.1316, specifically requiring protection for electrical and electronic systems on part 25 transport category airplanes. The final rule was published on April 28, 1994 (59 FR 22112). This regulation, in effect today, requires lightning protection for electrical and electronic systems based on the consequences of failure for functions these systems perform. The present regulation provides specific considerations that the applicant must design for to validate that the electrical and electronic systems and functions are protected from the effects of lightning strikes.

B. Related Rulemaking Activity

The FAA tasked the Aviation Rulemaking Advisory Committee (ARAC) on Transport Airplane and Engine Issues (57 FR 58843; December 11, 1992) to develop recommendations for specific electrical and electronic systems lightning protection requirements for aircraft certificated under parts 23, 27, and 29 standards.

The ARAC submitted recommendations to the FAA in November 1998. The recommendations included lightning protection requirements, based on the consequences of the failure of system functions, similar to the requirements in § 25.1316. The ARAC also recommended changes to § 25.1316 consistent with its recommendations for classification of the failure conditions for parts 23, 27, and 29. ARAC recommended the same requirements for all four parts.

The FAA considered the ARAC recommendations in developing this notice of proposed rulemaking (NPRM) and agrees with these recommendations, with one exception. After careful consideration, the FAA is unable to endorse the ARAC recommendation to provide an exception to the requirement for automatic and timely recovery of a system that performs a function for which failure is catastrophic. ARAC recommended an exception to recovery of such a system in instances where the recovery of the system would conflict with other operational or functional requirements of the system. We are unable to identify a situation where such an exception would be appropriate, nor could we justify the need for such an exception and propose requirements that could ensure an equivalent level of safety.

The recommendations of the ARAC are available at the following Web address: *http://www.faa.gov/regulations_policies/rulemaking/committees/arac/issue_areas/tae/eeh/.*

C. Advisory Material

In the absence of performance standards for protection of electrical and electronic systems from lightning effects, the FAA has issued Advisory Circular (AC) 20–136A, "Protection of Aircraft Electrical/Electronic System against the Indirect Effects of Lightning." Since advisory circulars are not mandatory, a type certificate applicant may elect to ignore or deviate from the guidance therein, while still satisfying the requirement to "consider" lightning. The lack of specific performance standards has resulted in a variety of different interpretations and means of compliance for system lightning protection.

General Discussion of the Proposal

The proposed rulemaking would establish type certification standards for lightning protection of electrical and electronic systems for aircraft certificated under parts 23, 27 and 29. This action also proposes to revise § 25.1316 for transport category airplanes to be consistent in format with the proposed regulations applicable to other aircraft.

This rulemaking reflects a change in our approach to achieving lightning protection for aircraft by protecting functions of electrical and electronic systems. The current part 25 regulation for lightning protection focuses on protection of electrical and electronic systems that perform critical and essential functions and are no longer compatible or consistent with the latest classification concepts, terminology, and practices. Parts 23, 27 and 29 regulations for lightning protection are less precise, and require the applicant only to "consider" lightning. While the focus on protection of electrical and electronic systems that perform critical or essential functions was fundamental to the wording of earlier airworthiness standards regarding systems, and associated advisory circulars, this proposal focuses on the effects that failure conditions would have on aircraft safety. The FAA proposes that lightning protection design required for each aircraft would be determined by the type of electrical and electronic systems installed on the aircraft, and how critical the system or function is to either continued flight and landing, or the aircraft capability and flightcrew's ability to respond to adverse operating conditions.

In aircraft, the term "electrical and electronic system" refers to the electrical and electronic equipment, associated software, and interconnecting wires installed on aircraft to perform one or more functions. The term "function" refers to the action that the system performs. An aircraft system may perform multiple functions with different failure conditions. For example, an engine control system may perform the function of the engine thrust control—for which failure could have catastrophic effects on the continued safe flight and landing of the aircraft. The engine control system may also perform the function of engine condition monitoring—for which failure could have hazardous or major effects on continued safe operation of the aircraft. A function may also be performed by multiple systems or subsystems. For example, the function of controlling engine thrust may be provided by an electronic engine control subsystem, with a separate backup mechanical control subsystem.

A. Proposed Performance Standards

The proposed regulations would establish consistent performance standards to design lightning protection for those aircraft electrical and electronic systems that provide:

1. Functions for which failure would *prevent* the continued safe flight and landing of the aircraft: Failure of these functions could result in catastrophic consequences such as loss of life and loss of the aircraft;

2. Functions for which failure would *reduce the capability* of the aircraft or the ability of the flightcrew to cope with adverse operating conditions: Failure of

these functions could have hazardous or major consequences.

This NPRM identifies system lightning performance standards for item 1 as "protection against catastrophic failure." These standards are addressed by paragraph (a) of the proposed regulations. System lightning performance standards for item 2 will be referenced as "protection against hazardous or major failure." These standards are addressed by paragraph (b) of the proposed regulations.

The proposed standards for protection against catastrophic failure would require an applicant to show that the function would not be adversely affected during or after the time the aircraft is exposed to lightning. Compliance with the standard would depend on the specific aircraft function, the system that performs that function, and the effects of failure on the system and function. Further guidance on defining the adverse effects for specific aircraft system functions can be found in various FAA advisory materials.

The system could be affected during lightning exposure because a backup system continues to provide the function, even though the function may not be adversely affected. Accordingly, the applicant would be required to show that the system would automatically recover normal operation after the lightning exposure in a timely manner. "Normal operation" means the ability of the system to perform functions to the extent necessary to continue safe flight and landing. For systems that provide one or more functions, the proposal would require the system to automatically recover normal operations of those functions for which failure could be catastrophic. Other functions would not be required to return to normal operation. The FAA would determine what constitutes "timely" automatic recovery on a case-by-case evaluation, based on engineering judgment of the specific function and its failure effects.

The aircraft engine thrust/power control is an example of a function for which failure would have catastrophic effects on the aircraft's ability to continue safe flight and landing. A full-authority electronic engine control system may provide this function, and perform aircraft engine thrust/power control by automatically regulating fuel flow and airflow to the engine(s). The loss or malfunction of this function could stop the engines or result in engine overspeed, which could result in a catastrophic failure condition. In this situation, the applicant would be required to ensure the aircraft engine thrust/power control function is not adversely affected during or after lightning exposure.

The aircraft display is another function for which failure would have catastrophic effects on continued safe flight and landing. This function provides aircraft attitude, altitude, and airspeed information to the pilot, which are required for continued safe flight and landing of the aircraft. The aircraft display may be provided by two systems: An electronic primary display and an electromechanical standby display. In this situation, the primary display may momentarily blank while the aircraft is exposed to lightning, provided the information is available from a standby display. The applicant would be required to demonstrate that the primary display system automatically recovers normal operation in a timely manner with no adverse effect on providing the attitude, altitude, and airspeed information.

The proposed requirements for protection against hazardous or major failure would require the applicant to show that the system would not be damaged, and the function would recover normal operation in a timely manner after the aircraft is exposed to lightning. This proposed requirement would primarily focus on the recovery of the function to normal operation. For these systems, "damaged" refers to the inability to recover. As with the proposed standard for protection against catastrophic failure, the FAA would determine what constitutes a "timely" recovery of normal function based on engineering judgment of the specific function and its failure effects upon the design submitted for certification.

An example of a function for which failure could result in or have a hazardous or major effect on aircraft operation is voice communication provided by radio. Failure of this function would increase the flightcrew's normal workload and affect their ability to maintain situational awareness, as the flightcrew would no longer be able to transmit or receive voice communication information with other pilots or air traffic control. As proposed, the applicant would be required to ensure the radio system is not damaged after lightning exposure and the voice communication function would recover in a timely manner. Recovery may require flightcrew interaction.

B. Applicability of the Proposed Lightning Protection Requirements

Application of the proposed standards for aircraft electrical and electronic system lightning protection would be based on the aircraft's potential for lightning exposure and the consequences of system failure. The proposed requirements for parts 25 and 29 would apply to all aircraft certificated under part 25 and part 29. The proposed requirements would also apply to part 23 and part 27 aircraft approved for operations under instrument flight rules (IFR). In addition, the proposed requirements would apply to part 23 airplanes and part 27 rotorcraft approved solely for operations under visual flight rules (VFR); for those electrical and electronic systems that perform functions for which failures would be catastrophic.

Parts 25 and 29 Aircraft

Parts 25 and 29 transport category aircraft are now routinely equipped with complex electrical and electronic systems. These systems are highly integrated, and provide a range of flight-critical functions. The FAA has tentatively determined that these transport category aircraft should be required to provide full protection for those systems that perform functions for which failure could result in both catastrophic and hazardous or major failure effects.

Part 23 Airplanes

Application of the proposed requirements for airplanes certificated to part 23 standards depends on whether the airplane is approved for IFR or VFR-only operations. This difference exists because, compared to part 23 VFR-only airplanes, part 23 IFR-approved airplanes are more likely equipped with complex electrical and electronic systems that allow them to operate into instrument meteorological conditions (IMC), where lightning strikes are prevalent. As a result, part 23 IFR-approved airplanes are designed for, and expected to operate into, weather conditions that present greater potential for exposure to lightning.

In contrast, part 23 VFR-only airplanes are prohibited by regulation from operating into IMC. Nevertheless, there is still some likelihood of the airplanes being exposed to lightning. Therefore, the FAA has determined that the resulting risk to part 23 VFR-only airplanes for which failure would be catastrophic may be sufficiently great to require lightning protection to prevent catastrophic failures. However, the FAA has tentatively determined that the resulting risk to part 23 VFR-only airplanes with electrical or electronic systems installed for which failure would be hazardous or major remains sufficiently low as to not require lightning protection.

Part 27 Rotorcraft

Similar to the applicability of proposed changes to part 23, application of the proposed requirements for part 27 would depend on whether the rotorcraft is approved for IFR or VFR-only operations. The proposed lightning protection requirements would apply to IFR-approved rotorcraft in the same way, and for the same reasons. Likewise, part 27 VFR-only rotorcraft would be required to protect those systems that perform functions where failure could have catastrophic effects. This requirement is intended to address the unique performance capabilities that make rotorcraft VFR operations vulnerable to lightning. Rotorcraft are inherently more maneuverable, and have more versatile landing capability than fixed wing aircraft. Accordingly, they are permitted to operate with low minimum altitude, low flight visibility, and nearer to clouds. Although prohibited from operating directly into IMC, part 27 VFR-only rotorcraft are able to operate close to meteorological conditions that have a high potential for lightning strikes. This means rotorcraft certificated to part 27 standards in VFR-only operations are likely to encounter lightning exposure. The FAA has determined that the resulting risk to part 27 VFR-only rotorcraft systems for which failure would be catastrophic is sufficiently great to propose requiring lightning protection to prevent catastrophic failures. As with part 23 VFR-only airplanes, the FAA has determined that the resulting risk to rotorcraft certificated to part 27 standards that operate in VFR-only operations with electrical or electronic systems installed for which failure would be hazardous or major likely remains sufficiently low as to not require lightning protection.

C. Specific Changes to Part 25

The proposed changes to § 25.1316 are intended to rephrase the existing regulation to clarify intent, to reformat it so that it is in keeping with the other three parts, and to delete § 25.1316(c) which sets forth specific requirements for compliance. If adopted, the proposal would not change the current part 25 practices for lightning protection. Rather, the proposal would shift the emphasis placed on protecting functions of electrical and electronic systems, and focus on the effects that systems and equipment failure conditions have on aircraft safety. The most significant change would be to clearly set forth lightning protection performance standards for the function and the system, based on the failure effects of the function.

Section 25.1316(a) currently requires those electrical and electronic systems that provide functions where failure would be catastrophic to be designed and installed so their operation and operational capabilities are not adversely affected when the airplane is exposed to lightning. Section 25.1316(b) requires that lightning protection for electrical and electronic systems that perform functions for which failure would be hazardous or major must be designed and installed to ensure that these functions can be timely recovered after exposure to lightning.

The proposed regulation is distinguishable from existing § 25.1316 in that it places the emphasis on the function and also sets forth specific standards for the function and the system respectively. By focusing on functions performed by systems, rather than the systems themselves, the proposed revision would allow the applicant to choose appropriate system configurations and designs to comply with this regulation, but would also require that the applicant demonstrate that the proposed configuration provides effective protection.

Finally, the proposal would remove § 25.1316(c), which contains specific step-by-step actions required to show compliance. The ARAC recommended removing § 25.1316(c) because this information is more appropriately addressed in guidance for means of compliance. Since § 25.1316 was adopted in 1994, significant guidance has been developed by the FAA and lightning technical committees. Advisory circulars 20–136A and 20–155 provide much more comprehensive guidance on means of compliance with the lightning regulations. Removing § 25.1316(c) allows for the use of means of compliance that achieve the intent of § 25.1316(a) and (b) without the prescriptive list that is currently in § 25.1316(c). The technology for showing compliance with § 25.1316(a) and (b) has progressed substantially since § 25.1316 was adopted in 1994, which makes the prescriptive list in § 25.1316(c) obsolete.

D. Miscellaneous Changes

This rulemaking would remove §§ 27.1309(d) and 29.1309(h), and delete "lightning and" from §§ 27.610(d)(4) and 29.610(d)(4). Section 27.1309(d) currently governs lightning protection for part 27 electrical and electronic systems, and requires only that the applicant "consider" the effects of lightning according to § 27.610. Section 29.1309(h) requires only that the applicant "consider" the effects of lightning. Sections 27.610(d)(4) and 29.610(d)(4) both address general design requirements for electrical bonding and protection against lightning and static electricity. They require electrical bonding against lightning to reduce to an acceptable level the effects of lightning on the functioning of essential electrical and electronic equipment. Adoption of the proposed §§ 27.1316 and 29.1316 would replace these references to lightning with specific performance standards for lightning protection of parts 27 and 29 electrical and electronic systems.

Also, we propose to add a cross reference to § 27.1316 in Appendix B of Part 27 on electrical and electronic system lightning protection for rotorcraft approved for IFR operation.

Paperwork Reduction Act

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

International Compatibility

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to conform to 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 proposed regulations.

Regulatory Evaluation, Regulatory Flexibility Determination, International Trade Impact Assessment, and Unfunded Mandates Assessment

Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 (Pub. L. 96–354) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (Pub. L. 96–39) 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, that they be the basis of

U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) 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 the private sector, of $100 million or more annually (adjusted for inflation with base year of 1995). This portion of the preamble summarizes the FAA's analysis of the economic impact of the proposed rule.

Department of Transportation Order DOT 2100.5 prescribes policies and procedures for simplification, analysis, and review of regulations. If the expected cost impact is so minimal that a proposed or final rule does not warrant a full evaluation, this order permits that a statement to that effect and the basis for it be included in the preamble. Such a determination has been made for this proposed rule. The reasoning for this determination follows:

In a cost survey of industry conducted by the FAA, six of the seven replying firms reported no incremental cost from this proposed rule. One firm reported "little or no cost." The reason for little or no incremental cost is that these firms (six out of seven) reported usage of Advisory Circular (AC) 20–136A, "Protection of Aircraft Electrical/Electronic Systems Against the Indirect Effects of Lightning," as guidance for demonstrating compliance with lightning requirements. Consequently, these firms are already in compliance with the proposed rule as it represents a codification of AC 20–136A. For manufacturers of Part 25 airplanes, cost changes should be minimal in any case, as the proposed changes in the rule are clarifying only. Moreover, four of the seven respondents reported at least some expected benefits from the proposed rule (*See* "Benefits" section below). The FAA therefore has determined that this proposed rule would have minimal costs with positive net benefits and does not warrant a full regulatory evaluation. The FAA requests comments with supporting justification on the FAA determination of minimal impact. Our analysis follows below.

The FAA has also determined that this proposed rule 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.

Total Costs and Benefits of This Rulemaking

As noted above, there are little or no expected costs for this proposed rule and some benefits. The benefits therefore justify the costs. *See* details in the separate costs and benefits sections below.

Who Is Potentially Affected by This Rulemaking?

Manufacturers of Parts 23, 25, 27, and 29 aircraft and manufacturers of electrical and electronic systems for those aircraft.

Assumptions and Sources of Information

- We use a ten-year period of analysis, 2009–2018.
- Data on costs of compliance and benefits of this rule were obtained from an FAA survey of industry.
- Firms are defined as "small" or "large" using Small Business Administration (SBA) size standards (U.S. SBA. Table of Small Business Size Standards Matched to North American Industry Classification System Codes, July 21, 2006).

Costs of This Rulemaking

On February 9, 2009, we sent a detailed cost survey to six manufacturers of Parts 23, 25, 27, and 29 aircraft and three manufacturers of electrical and electronic systems for those aircraft. In addition to several detailed cost questions, the survey also asked one question about potential benefits from the proposed rule. We received four responses to this initial survey. On March 17, 2009, we resurveyed the five non-respondents and received three additional replies, although the last response came only on August 8, 2009. The seven responses we received were from manufacturers ranging from a small aircraft manufacturer (less than 1,500 employees) to the largest U.S. aircraft manufacturer. As shown in the table below, the respondents indicated little or no cost from the proposed rule.

Summary of Cost Survey Results

Firm	Type	Products certified to:	Costs	Benefits
A	Airplane manufacturer	Part 23	No cost	"The certification process will be less ambiguous and slightly streamlined by writing some of the AC 20–136A requirements directly into the regulations."
B	Airplane manufacturer	Parts 23 & 25	No cost	"The commonality between parts and the ability to use the same substantiation across product lines is a very large benefit."
C	Airplane manufacturer	Parts 23 & 25	No cost	"Harmonization of Part 23 and Part 25 rules will simplify our certification process as our internal procedures benefit from any similarity of the two Parts."
D	Airplane manufacturer	Part 25	Little or no cost	No response to benefits question.
E	Electrical/electronic systems manufacturer.	Parts 23 & 25	No cost	"NA."
F	Electrical/electronic systems manufacturer.	Parts 23, 25, 27, & 29	No cost	"None."
G	Electrical/electronic systems manufacturer.	Parts 23, 25, 27, & 29	No cost	"Standardization of the rule across all aircraft types may simplify requirements capture resulting in some limit[ed] non-recurring cost reduction."

Benefits of This Rulemaking

As supported by the responses to the benefits question, shown in the table, the proposed rule and the standardization of rule language would reduce firm costs by clarifying and simplifying the certification process.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (Pub. L. 96–354) (RFA) establishes "as a principle of regulatory issuance that

agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure that such proposals are given serious consideration." The RFA 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 rule will have a significant economic impact on a substantial number of small entities. If the agency determines that it will, the agency must prepare a regulatory flexibility analysis as described in the RFA. However, if an agency determines that a rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the RFA 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.

As noted above, in a cost survey of industry, the FAA found little or no expected costs from this proposed rule. The reason for this finding is that all but one respondent reported usage of AC 20–136A, "Protection of Aircraft Electrical/Electronic Systems Against the Indirect Effects of Lightning," as guidance for complying with system lightning requirements. Accordingly, this proposed rule represents current practice and imposes no more requirements than those previously recommended by AC 20–136A. Consequently, these firms are already in compliance with the proposed rule as it represents a codification of AC 20–136A. For manufacturers of Part 25 airplanes, cost changes should, in any case, be minimal as the proposed changes in the rule are clarifying only. Therefore, the FAA certifies that this proposed rule would not have a significant economic impact on a substantial number of small entities. The FAA solicits comments regarding this determination.

International Trade Impact Assessment

The Trade Agreements Act of 1979 (Pub. L. 96–39), as amended by the Uruguay Round Agreement Act (Pub. L. 103–465), prohibits Federal agencies from establishing any standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Pursuant to these Acts, the establishment of standards is not considered not considered an unnecessary obstacle to the foreign commerce of the United States, so long as the standard have a legitimate domestic objective, such as the protection of safety, and do not operate in a manner that excludes imports that meet this objective. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. The FAA notes the purpose is to ensure the safety of the American public, and has assessed the effect of this proposed rule to ensure that it does not exclude imports that meet this objective. As a result, this proposed rule is not considered as creating an unnecessary obstacle to foreign commerce because the FAA found little or no expected costs from this proposed rule.

Unfunded Mandates Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) 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 (in 1995 dollars) 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 $136.1 million in lieu of $100 million.

This proposed rule does not contain such a mandate. The requirements of Title II do not apply.

Executive Order 13132, Federalism

The FAA has analyzed this proposed 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.

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 proposed rulemaking action qualifies for the categorical exclusion identified in paragraph 308(c)(1) and involves no extraordinary circumstances.

Regulations That Significantly Affect Energy Supply, Distribution, or Use

The FAA has analyzed this NPRM 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, it is not a "significant regulatory action" under Executive Order 12866 and DOT's Regulatory Policies and Procedures.

Additional Information

Comments Invited

The FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. We also invite comments relating to the economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, please send only one copy of written comments, or if you are filing comments electronically, please submit your comments only one time.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. Before acting on this proposal, we will consider all comments we receive on or before the closing date for comments. We will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. We may change this proposal in light of the comments we receive.

Proprietary or Confidential Business Information

Do not file in the docket information that you consider to be proprietary or confidential business information. Send or deliver this information directly to the person identified in the **FOR FURTHER INFORMATION CONTACT** section of this document. You must mark the information that you consider proprietary or confidential. If you send the information on a disk or CD–ROM, mark the outside of the disk or CD–ROM and also identify electronically within the disk or CD–ROM the specific information that is proprietary or confidential.

Under 14 CFR 11.35(b), when we are aware of proprietary information filed with a comment, we do not place it in the docket. We hold it in a separate file to which the public does not have access, and we place a note in the docket that we have received it. If we receive a request to examine or copy this information, we treat it as any other request under the Freedom of Information Act (5 U.S.C. 552). We process such a request under the DOT procedures found in 49 CFR part 7.

Availability of Rulemaking Documents

You can get an electronic copy of rulemaking documents using the Internet by—

1. Searching the Federal eRulemaking Portal (*http://www.regulations.gov*);

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 docket or notice number of this rulemaking.

You may access all documents the FAA considered in developing this proposed rule, including economic analyses and technical reports, from the Internet through the Federal eRulemaking Portal referenced in paragraph (1).

List of Subjects

14 CFR Part 23

Aircraft, Aviation safety, Signs and symbols.

14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

14 CFR Part 27

Aircraft, Aviation safety.

14 CFR Part 29

Aircraft, Aviation safety.

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend parts 23, 25, 27, and 29 of Title 14, Code of Federal Regulations, as follows:

PART 23—AIRWORTHINESS STANDARDS: NORMAL, UTILITY, ACROBATIC, AND COMMUTER CATEGORY AIRPLANES

1. The authority citation for part 23 continues to read as follows:

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

2. Add new § 23.1306 to read as follows:

§ 23.1306 Electrical and electronic system lightning protection.

(a) Each electrical and electronic system that performs a function, for which failure would prevent the continued safe flight and landing of the airplane, must be designed and installed so that—

(1) The function is not adversely affected during and after the time the airplane is exposed to lightning; and

(2) The system automatically recovers normal operation of that function in a timely manner after the airplane is exposed to lightning.

(b) For airplanes approved for instrument flight rules operation, each electrical and electronic system that performs a function, for which failure would reduce the capability of the airplane or the ability of the flightcrew to respond to an adverse operating condition, must be designed and installed so that—

(1) The system is not damaged after the airplane is exposed to lightning; and

(2) The function recovers normal operation in a timely manner after the airplane is exposed to lightning.

PART 25—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY AIRPLANES

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

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

4. Revise § 25.1316 to read as follows:

§ 25.1316 Electrical and electronic system lightning protection.

(a) Each electrical and electronic system that performs a function, for which failure would prevent the continued safe flight and landing of the airplane, must be designed and installed so that—

(1) The function is not adversely affected during and after the time the airplane is exposed to lightning; and

(2) The system automatically recovers normal operation of that function in a timely manner after the airplane is exposed to lightning.

(b) Each electrical and electronic system that performs a function, for which failure would reduce the capability of the airplane or the ability of the flightcrew to respond to an adverse operating condition, must be designed and installed so that—

(1) The system is not damaged after the airplane is exposed to lightning; and

(2) The function recovers normal operation in a timely manner after the airplane is exposed to lightning.

PART 27—AIRWORTHINESS STANDARDS: NORMAL CATEGORY ROTORCRAFT

5. The authority citation for part 27 continues to read as follows:

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

6. Amend § 27.610 by revising paragraph (d)(4) to read as follows:

§ 27.610 Lightning and static electricity protection.

* * * * *

(d) * * *

(4) Reduce to an acceptable level the effects of static electricity on the functioning of essential electrical and electronic equipment.

§ 27.1309 [Amended]

7. Amend § 27.1309 by removing paragraph (d).

8. Add a new § 27.1316 to read as follows:

§ 27.1316 Electrical and electronic system lightning protection.

(a) Each electrical and electronic system that performs a function, for which failure would prevent the continued safe flight and landing of the rotorcraft, must be designed and installed so that—

(1) The function is not adversely affected during and after the time the rotorcraft is exposed to lightning; and

(2) The system automatically recovers normal operation of that function in a timely manner after the rotorcraft is exposed to lightning.

(b) For rotorcraft approved for instrument flight rules operation, each electrical and electronic system that performs a function, for which failure would reduce the capability of the rotorcraft or the ability of the flightcrew to respond to an adverse operating condition, must be designed and installed so that—

(1) The system is not damaged after the rotorcraft is exposed to lightning; and

(2) The function recovers normal operation in a timely manner after the rotorcraft is exposed to lightning.

9. Add paragraph X. to Appendix B of part 27 to read as follows:

Appendix B to Part 29—Airworthiness Criteria for Helicopter Instrument Flight

* * * * *

X. *Electrical and electronic system lightning protection.* For regulations concerning lightning protection for electrical and electronic systems, *see* § 27.1316.

PART 29—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY ROTORCRAFT

10. The authority citation for part 29 continues to read as follows:

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

11. Amend § 29.610 by revising paragraph (d)(4) to read as follows:

§ 29.610 Lightning and static electricity protection.

* * * * *

(d) * * *

(4) Reduce to an acceptable level the effects of static electricity on the functioning of essential electrical and electronic equipment.

§ 29.1309 [Amended]

12. Amend § 29.1309 by removing paragraph (h).

13. Add new § 29.1316 to read as follows:

§ 29.1316 Electrical and electronic system lightning protection.

(a) Each electrical and electronic system that performs a function, for which failure would prevent the continued safe flight and landing of the rotorcraft, must be designed and installed so that—

(1) The function is not adversely affected during and after the time the rotorcraft is exposed to lightning; and

(2) The system automatically recovers normal operation of that function in a timely manner after the rotorcraft is exposed to lightning.

(b) Each electrical and electronic system that performs a function, for which failure would reduce the capability of the airplane or the ability of the flightcrew to respond to an adverse operating condition, must be designed and installed so that—

(1) The system is not damaged after the rotorcraft is exposed to lightning; and

(2) The function recovers normal operation in a timely manner after the rotorcraft is exposed to lightning.

Issued in Washington, DC, on March 29, 2010.

Kalene C. Yanamura,

Acting Director, Aircraft Certification Service.

[FR Doc. 2010–7525 Filed 4–1–10; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2010–0280; Directorate Identifier 2009–NM–259–AD]

RIN 2120–AA64

Airworthiness Directives; The Boeing Company Model 777–200LR and –300ER Series Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain Model 777–200LR and –300ER series airplanes. This proposed AD would require doing a high frequency eddy current inspection for cracking of the keyway of the fuel tank access door cutout on the left and right wings between wing rib numbers 8 (wing station 387) and 9 (wing station 414.5), and related investigative and corrective actions if necessary. This proposed AD results from reports of cracks emanating from the keyway of the fuel tank access door cutout of the lower wing skin between wing rib numbers 8 and 9. We are proposing this AD to prevent loss of the lower wing skin load path, which could cause catastrophic structural failure of the wing.

DATES: We must receive comments on this proposed AD by May 17, 2010.

ADDRESSES: You may send comments by any of the following methods:

- *Federal eRulemaking Portal:* Go to *http://www.regulations.gov.* Follow the instructions for submitting comments.
- *Fax:* 202–493–2251.
- *Mail:* U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590.
- *Hand Delivery:* U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H–65, Seattle, Washington 98124–2207; telephone 206–544–5000, extension 1; fax 206–766–5680; e-mail *me.boecom@boeing.com;* Internet *https://www.myboeingfleet.com.* You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425–227–1221.

Examining the AD Docket

You may examine the AD docket on the Internet at *http://www.regulations.gov;* or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (telephone 800–647–5527) is in the **ADDRESSES** section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Duong Tran, Aerospace Engineer, Airframe Branch, ANM–120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057–3356; telephone (425) 917–6452; fax (425) 917–6590.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the **ADDRESSES** section. Include "Docket No. FAA–2010–0280; Directorate Identifier 2009–NM–259–AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to *http://www.regulations.gov,* including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

We have received reports of cracks emanating from the keyway of the fuel tank access door cutout of the lower wing skin between wing rib numbers 8 and 9. The keyway is found on Model 777–200LR and 777–300ER airplanes at this location as the access door has a fuel measuring stick installed. The keyway is used to ensure that the fuel measuring stick is oriented properly in the access door cutout. The crack is the result of fatigue due to the position of the keyway. After the crack initiates, if