

# Proposed Rules

Federal Register

Vol. 75, No. 48

Friday, March 12, 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 Part 29

[Docket No. FAA-2009-0413; Notice No. 10-04]

RIN 2120-AJ51

#### Fatigue Tolerance Evaluation of Metallic Structures

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** This proposed rule would amend the airworthiness standards for fatigue tolerance evaluation (FTE) of transport category rotorcraft metallic structures. This proposal would revise the FTE safety requirements to address advances in structural fatigue substantiation technology for metallic structures. This provides an increased level of safety by avoiding or reducing catastrophic fatigue failures of metallic structures. These increased safety requirements would help ensure that should serious accidental damage occur during manufacturing or within the operational life of the rotorcraft, the remaining structure could withstand, without failure, any fatigue loads that are likely to occur, until the damage is detected or the part is replaced. Besides improving the safety standards for FTE of all principal structural elements (PSEs), the proposed amendment would be harmonized with international standards.

**DATES:** Send your comments on or before June 10, 2010.

**ADDRESSES:** You may send comments identified by Docket Number FAA-2009-0413 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:* Bring 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.

*Privacy:* The FAA will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. Using the search function of the docket Web site, anyone can find and read the electronic form of all comments received into any of the 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 documents or comments received, go to <http://www.regulations.gov> and follow the online instructions for accessing the docket. Or, go 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.

**FOR FURTHER INFORMATION CONTACT:** For technical questions concerning this proposed rule contact Sharon Y. Miles, Regulations and Policy Group, Rotorcraft Directorate, ASW-111, Federal Aviation Administration, Fort Worth, Texas 76137-0111; telephone number (817) 222-5122; facsimile (817) 222-5961; e-mail [sharon.y.miles@faa.gov](mailto:sharon.y.miles@faa.gov). For legal questions concerning this proposed rule contact Steve C. Harold, Directorate Counsel, ASW-7G1, Federal Aviation Administration, Fort Worth, Texas 76137-0007; telephone (817) 222-5099; facsimile (817) 222-5945; e-mail [steve.c.harold@faa.gov](mailto:steve.c.harold@faa.gov).

**SUPPLEMENTARY INFORMATION:** Later in this preamble under the Additional Information section, there is a discussion of how you can comment on this proposal and how the FAA will handle your comments. Included in this

discussion is related information about the docket handling. There is a discussion on 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 issued under the authority described in subtitle VII, part A, subpart III, section 44701, "General Requirements," section 44702, "Issuance of Certificates," and section 44704, "Type Certificates, Production Certificates, and Airworthiness Certificates." Under section 44701, the FAA is charged with prescribing regulations and minimum standards for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. Under section 44702, the Administrator may issue various certificates including type certificates, production certificates, air agency certificates, and airworthiness certificates. Under section 44704, the Administrator must issue type certificates for aircraft, aircraft engines, propellers, and specified appliances when the Administrator finds the product is properly designed and manufactured, performs properly, and meets the regulations and minimum standards prescribed under section 44701(a). This regulation is within the scope of these authorities because it would promote safety by updating the existing minimum prescribed standards, used during the type certification process, to address advances in metallic structural fatigue substantiation technology. It would also harmonize this standard with international standards for evaluating the fatigue strength of transport category rotorcraft metallic primary structural elements.

#### Background

Rotorcraft fatigue strength reduction or failure may occur because of aging, temperature, moisture absorption, impact damage, or other factors. Since a reduction in strength of any primary structural element can lead to a catastrophic failure, it is important to perform fatigue tolerance evaluations.

Fatigue tolerance evaluation provides a strength assessment of primary

structural elements (PSEs). It requires the applicant to evaluate the strength of various rotorcraft components including, but not limited to, rotors, rotor drive systems between the engines and the main and tail rotor hubs, controls, fuselage, fixed and movable control surfaces, engine and transmission mountings, landing gear, and their related primary attachments. Fatigue tolerance evaluations of PSEs are performed to determine appropriate retirement lives and inspections to avoid catastrophic failure during the operational life of the rotorcraft.

Advances in structural fatigue substantiation technology for metallic structures are not addressed in current regulations. The current regulations do not consider the advances in the safe-life methodology, and developments in crack growth methodology to address rotorcraft unique characteristics. This proposed rule would address those advances and amend the airworthiness standards for fatigue tolerance evaluation (FTE) of transport category rotorcraft metallic structures. This would increase the level of safety by avoiding or reducing catastrophic fatigue failures of metallic structures.

#### *Fatigue Evaluation Techniques and Requirements*

In the 1950s, safe-life methodology to establish retirement lives, such as that described in AC 27-1B, MG 11, was used to evaluate the occurrence of fatigue conditions in rotorcraft dynamic components. Historically, application of this methodology has been successful in providing satisfactory reliability for transport category rotorcraft. In addition, manufacturers would include routine inspections in their maintenance programs to detect damage, such as scratches, corrosion, wear, or cracks. These inspections were not based on analysis or tests, but rather on experience with similar designs, engineering judgment, and good design practices. The inspections helped minimize the effect of damage when the rotorcraft was being operated.

In the 1980s, industry recognized that a higher reliability for fatigue critical structural components might be achieved by considering the strength reducing effects of damage that can occur during manufacture or operation. About that same time, rotorcraft manufacturers were introducing advanced composite materials for fatigue critical components in their rotorcraft.

The introduction of composites led manufacturers and regulatory authorities to develop a more robust safe-life methodology by considering the

specific static and fatigue-strength reduction effects due to aging, temperature, moisture absorption, impact damage, and other accepted industry practices. Furthermore, where clearly visible damage resulted from impact or other sources, inspection programs were developed to maintain safety.

With these developments, crack growth methodology has been successfully used for solving short-term airworthiness issues in metallic structures of rotorcraft and as the certification basis for civil and military transport aircraft applications. These advances in design, analytical methods, and other industry practices have made it feasible to address certain types of damage that could result in fatigue failure.

Consistent with these technological advancements, the regulatory requirements of § 29.571 were substantially revised by Amendment 29-28 (54 FR 43930, October 27, 1989).

While many years have passed since the introduction of these regulatory requirements, Amendment 29-28 has rarely been used for certification of completely new rotorcraft designs, because there have been only a limited number of new rotorcraft designs since 1989, when that amendment became effective. Even though there have been a limited number of new rotorcraft designs, the rotorcraft community's general understanding of rotorcraft fatigue tolerance evaluation has developed considerably. Also, there has been much discussion within the technical community about the meaning of Amendment 29-28 and the merits of its prescribed fatigue tolerance methodologies.

These methodologies, discussed in Amendment 29-28, have been the subject of a series of meetings between the FAA, the rotorcraft industry, and the Technical Oversight Group for Aging Aircraft (TOGAA). These meetings and industry's position concerning rotorcraft fatigue and damage tolerance were documented in a White Paper, "Rotorcraft Fatigue and Damage Tolerance," which is located in the docket (FAA-2009-0413).

The rotorcraft industry White Paper recommended that safe-life methods should be complemented by damage tolerance methods, but also recommended retention of the flaw tolerant safe-life method, introduced in Amendment 29-28, as an available option. However, in 1999, TOGAA recommended that current safe-life methods be complemented by damage tolerance assessment methods and that the flaw tolerant safe-life method be

removed from the regulations. Since both groups recommended changes, the FAA decided to consider revision of the regulations.

The FAA tasked the Aviation Rulemaking Advisory Committee (ARAC) in 1991 to study the need to revise the regulations on fatigue evaluation in light of advancements in technology and operational procedures and to develop regulatory recommendations.

#### *History of Aviation Rulemaking Advisory Committee (ARAC)*

The ARAC was established on February 5, 1991 by notice in the **Federal Register** (56 FR 2190, January 22, 1991), to assist the FAA in the rulemaking process by providing advice from the private sector on major regulatory issues affecting aviation safety. The ARAC includes representatives of manufacturers, air carriers, general aviation, industry associations, labor groups, universities, and the general public. The ARAC's formation has given the FAA added opportunities to seek information directly from significantly affected parties who meet and exchange ideas about proposed and existing rules that should be created, revised, or eliminated.

Following an announcement in the **Federal Register** (65 FR 17936, April 5, 2000), the FAA chartered an ARAC Working Group to study and make appropriate recommendations on whether the FAA should issue new or revised airworthiness standards on fatigue evaluation of transport category rotorcraft metallic structures.

The working group, co-chaired by representatives from a U.S. manufacturer and a European manufacturer, included technical specialists knowledgeable of fatigue evaluation of rotorcraft structures. This broad participation is consistent with FAA policy to have all known interested parties involved as early as practicable in the rulemaking process.

The working group evaluated the industry White Paper, TOGAA's recommendations, and the continuing activities and results of rotorcraft damage tolerance research and development. Consequently, the working group recommended changes to the fatigue evaluation requirements for transport category rotorcraft found in 14 CFR 29.571 to address advances in technology and damage tolerance assessment methodologies. The ARAC accepted those recommendations and presented them to the FAA. This proposed rule is consistent with the ARAC's recommendations.

### Statement of the Issues

Before Amendment 29–28, there was no requirement to assess the impact of damage on the fatigue performance of any rotorcraft structure. The strategy used to manage fatigue was limited to retirement of the rotorcraft part or component before the probability of crack initiation became significant, and the “safe-life” method was used to establish retirement times.

It was generally agreed, based on in-service experience that not accounting for damage could be a serious shortcoming. Therefore, Amendment 29–28 required consideration of damage when performing fatigue evaluations unless it is established that for a particular structure damage consideration cannot be achieved within the limitations of geometry, inspectability, or good design practice. Amendment 29–28 also prescribed two new methods to account for damage (“flaw tolerant safe-life” and “fail-safe”). These are referred to as flaw tolerant methods. Amendment 29–28 also retained the original (“safe-life”) method to be used if either of the two new methods requiring damage consideration was not achievable within the limitations of geometry, inspectability, or good design practice.

Within the context of current § 29.571, the “flaw tolerant safe-life” method and the “fail-safe” method are considered equivalent options. The “flaw tolerant safe-life” method is based on crack initiation time in purposely “flawed” principal structural elements (PSEs) and results in a determination of retirement life. The flaw tolerant “fail-safe” method is based on a crack growth life in a purposely “flawed” PSE and results in inspection requirements.

The “safe-life” method is based on a crack initiation time in a “non-flawed” PSE and results in a retirement life. Although the “safe-life” method does not explicitly account for any damage, under current § 29.571, it is the prescribed default fatigue evaluation method if the applicant shows that neither of the flaw tolerant methods can be achieved within the limitations of geometry, inspectability, or good design practice.

One of the primary issues addressed by the working group was the equivalency of the two flaw tolerant methods. While both can be used to address damage, their equivalency, from a technical perspective, is difficult to evaluate without specific factual details. To address this concern, the working group considered two issues, establishing inspection requirements using the flaw tolerant safe-life method,

and establishing retirement times using the fail-safe method. While both are theoretically possible, an evaluation of the effectiveness is not possible without considering the details of a specific application. Additionally, while using the flaw tolerant safe-life method for establishing an inspection interval is clearly not within the intent of the Amendment 29–28, the fail-safe method for establishing retirement times has been accepted as meeting its intent.

### Reference Material

1. Industry White Paper “Rotorcraft Fatigue and Damage Tolerance,” prepared for the TOGAA, January 1999.

2. TOGAA memo to the FAA, dated 15 March 1999.

These reference materials are located in the regulatory docket.

### Related Activity

The FAA has initiated a separate proposal to address fatigue tolerance evaluation of composite structure. With the use of advanced composite materials for rotorcraft structural components, we determined that a separate requirement specific to composite structures is required to address the unique characteristics and structural capability of composite structures.

### General Discussion of Proposals

The proposed rule for rotorcraft metallic structure would revise and clarify fatigue evaluation requirements to facilitate an improved level of safety and reduce the occurrence of catastrophic fatigue failures of metallic structures. Some of the more significant proposed revisions to the current rule are summarized below.

We have determined that the current rule is too prescriptive by directing the applicant to use specific methodologies to meet the safety objective. This approach has had the effect of lessening the significance of the basic objective of evaluating fatigue tolerance because in practice, the primary focus is on means of compliance. Thus, the entire rule has been rewritten to stress the performance objectives and deemphasize specific methodologies. We propose to delete all references to specific fatigue tolerance evaluation methods (i.e., flaw tolerant safe-life, fail-safe, and safe-life). The words “flaw tolerant and fail-safe” also have different meanings depending on usage. Rather, we propose a descriptive phrase that makes general reference to the entire fatigue evaluation process (including crack initiation, crack growth, and final failure) with or without the influence of damage. Consistent with the current rule, the

phrase “fatigue tolerance” is proposed for this purpose.

There are various fatigue tolerance evaluation methods used by industry. All of these methods have merit and could potentially be effective, depending on the specifics of the damage being addressed. The proposed rule requires a specific result, but does not specify the method to achieve the result. However, the proposed rule does require that all methods be validated by testing, and the Administrator must approve the methodology used for compliance.

We have determined that, in general, standards for the safest metallic structures use both retirement times and inspections together to mitigate the risk of catastrophic failure due to fatigue. Consequently, we propose a requirement in § 29.571(h) to establish inspection and retirement times or an approved equivalent means that establish an increased level of safety for metallic structures.

Also, we have determined that a key element that must be included in the evaluation is identification of all threats that need to be considered so damage to metallic structures can be quantified. Accordingly, paragraph (e)(4) of § 29.571 requires a threat assessment for all identified PSEs.

We recognize that an inspection approach may not be possible for some kinds of damage. Thus, we include a provision that would not require inspections, if they cannot be established within the limitations of geometry, inspectability, or good design practice. In this instance, other FAA approved procedures must be implemented to minimize the probability of the damage occurring or contributing to a catastrophic failure.

### Paperwork Reduction Act

This proposal contains the following new information collection requirements. As required by 44 U.S.C. 3507(d) of the Paperwork Reduction Act of 1995, the FAA has submitted the information requirements associated with this proposal to the Office of Management and Budget for its review.

*Title:* Fatigue Tolerance Evaluation (FTE) of Metallic Structures.

*Summary:* This proposal would revise the FTE safety requirements to address advances in structural fatigue substantiation technology for metallic structures. An increased level of safety would be provided by avoiding or reducing catastrophic fatigue failures of metallic structures. These increased safety requirements would help ensure that should accidental damage occur during manufacturing or within the

operational life of the rotorcraft, the remaining structure could, without failure, withstand fatigue loads that are likely to occur until the damage is detected and repaired or the part is replaced. In addition to improving the safety standards for FTE of all PSE, the proposed amendment would lead to a harmonized international standard.

*Use of:* To obtain type certification of a rotorcraft, an applicant must show that the rotorcraft complies with specific certification requirements. To show compliance, the applicant must submit substantiating data. FAA engineers or designated engineering representatives from industry would review the

required data submittals to determine if the rotorcraft complies with the applicable minimum safety requirements for fatigue critical rotorcraft metallic structures and that the rotorcraft has no unsafe features in the metallic structures.

*Respondents (including number of):* The likely respondents to this proposed information requirement are applicants for certification of fatigue critical metallic parts for transport category helicopters. A conservative estimate of the number of applicants affected by this rule would average 2 certification applicants every 10 years.

*Frequency:* The frequency of collection of this information is established as needed by the respondent to meet their certification schedule. The respondent must submit the required information prior to type certification, which can span a number of years.

*Annual Burden Estimate:* There will be 71.7 annual certification reporting and recordkeeping hours. The corresponding annual inspection hours are 197.1 (see table 12–1).

The total annual certification reporting and recordkeeping hours are 7,167. The corresponding annual inspection costs are \$11,827 (see table 13–1).

TABLE 12–1—ESTIMATED HOUR BURDEN OF INFORMATION COLLECTION REPORTING AND RECORDKEEPING

Item	Number of hours
Certification Reporting and Recordkeeping Hours:	
Reporting and Recordkeeping Hours Per Certification .....	322.5
New Certifications .....	6.0
Total Certification Reporting and Recordkeeping Hours .....	1,935.0
Number of Years .....	27.0
Annual Certification Reporting and Recordkeeping Hours .....	71.7
Inspection Reporting and Recordkeeping Hours:	
Reporting and Recordkeeping Hours Per Inspection .....	1.0
Total Aircraft Inspections .....	5,322.0
Total Inspection Reporting and Recordkeeping Hours .....	5,322.0
Number of Years .....	27.0
Annual Inspection Reporting and Recordkeeping Hours .....	197.1

TABLE 13–1—ESTIMATED HOUR BURDEN OF INFORMATION COLLECTION REPORTING AND RECORDKEEPING

Item	Number of hours
Certification Reporting and Recordkeeping Hours:	
Reporting and Recordkeeping Hours Per Certification .....	322.5
New Certifications .....	6.0
Total Certification Reporting and Recordkeeping Hours .....	1,935.0
Unit Cost (Per Hour) .....	\$100
Total Certification Reporting and Recordkeeping Costs .....	\$193,500
Number of Years .....	27.0
Annual Certification Reporting and Recordkeeping Hours .....	71.7
Annual Certification Reporting and Recordkeeping Costs .....	\$7,167
Inspection Reporting and Recordkeeping Hours:	
Reporting and Recordkeeping Hours Per Inspection .....	1.0
Total Aircraft Inspections .....	5,322.0
Total Inspection Reporting and Recordkeeping Hours .....	5,322.0
Unit Cost (Per Inspection) .....	\$60
Total Inspection Reporting and Recordkeeping Costs .....	\$319,320
Number of Years .....	27.0
Annual Inspection Reporting and Recordkeeping Hours .....	197.1
Annual Inspection Reporting and Recordkeeping Costs .....	\$11,827

The agency is soliciting comments to—

- (1) Evaluate whether the proposed information requirement is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;
- (2) evaluate the accuracy of the agency’s estimate of the burden;
- (3) enhance the quality, utility, and clarity of the information to be collected; and

(4) minimize the burden of the collection of information on those who are to respond, including using appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Individuals and organizations may send comments on the information collection requirement by May 11, 2010, and should direct them to the address listed in the **ADDRESSES** section of this

preamble. Comments also should be submitted to the Office of Management and Budget, Office of Information and Regulatory Affairs, Attention: Desk Officer for FAA, New Executive Building, Room 10202, 725 17th Street, NW., Washington, DC 20053.

According to the 1995 amendments to the Paperwork Reduction Act and 5 CFR 1320.8(b)(3)(vi), an agency may not collect or sponsor the collection of information, nor may it impose an

information collection requirement unless it displays a currently valid OMB control number. The OMB control number for this information collection will be published in the **Federal Register** after the Office of Management and Budget approves it.

#### **International Compatibility**

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA's policy to comply with International Civil Aviation Organization (ICAO) Standards to the maximum extent practicable. The FAA has determined that the proposed rule is consistent with the ICAO standard in ICAO Annex 8, Part IV.

#### **European Aviation Safety Agency**

The European Aviation Safety Agency (EASA) was established by the European Community to develop standards to ensure safety and environmental protection, oversee uniform application of those standards, and promote them internationally. EASA formally became responsible for certification of aircraft, engines, parts, and appliances on September 28, 2003. The FAA and EASA are coordinating their rulemaking efforts to facilitate harmonized standards for fatigue tolerance evaluation.

#### **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 impacts of this proposed rule. We suggest readers seeking greater detail read the full regulatory evaluation, a copy of which we have placed in the docket for this rulemaking.

In conducting these analyses, FAA has determined that this proposed rule:

- (1) Has benefits that justify its costs;
- (2) is not an economically "significant regulatory action" as defined in section 3(f) of Executive Order 12866, however the Office of Management and Budget has determined that this NPRM is a "significant regulatory action" because it harmonizes U.S. aviation standards with those of other civil aviation authorities;
- (3) is "significant" as defined in DOT's Regulatory Policies and Procedures;
- (4) would have a non-significant economic impact on a substantial number of small entities;
- (5) would not have a significant effect on international trade; and
- (6) would not impose an unfunded mandate on State, local, or tribal governments, or on the private sector by exceeding the monetary threshold identified.

These analyses are summarized below.

#### *Total Benefits and Costs of This Rulemaking*

The estimated total cost of this proposed rule is about \$9.0 million (\$2.9 million in present value at 7% for 27 years). The estimated potential benefits of avoiding at least two of the 9 avoidable historical transport category helicopter accidents are worth about \$12.9 million (\$5.6 million in present value).

#### *Who Is Potentially Affected by This Rulemaking?*

- Manufacturers of U.S.-registered part 29 rotorcraft, and
- Operators of part 29 rotorcraft.

#### *Our Cost Assumptions and Sources of Information*

- Discount rate—7%.
- Period of analysis of 27 years equals the 27 years of National Transportation Safety Board accident history. During this period manufacturers will seek new certifications for six part 29 rotorcraft and the total new production helicopters are estimated to be about 1,300.
- Value of fatality avoided—\$5.8 million (Source: U.S. Department of Transportation, Treatment of the Value of a Statistical Life in Department Analyses, February 5, 2008).

#### *Benefits of This Rule*

The benefits of this proposed rule consist of the value of lives and property that would be saved due to avoiding accidents involving part 29 rotorcraft. Nine Transport Category rotorcraft accidents occurred over the past 27-year historical period. If this rule would have been in effect, it is expected that these nine accidents would have been averted. In the future, without this rule, it is expected that there would be another nine transport category helicopter accidents. The benefit of this proposed rule would be to avert some or all of these accidents. Even if only two of these accidents were to be prevented, the benefit would be approximately \$12.9 million (\$5.6 million in present value).

#### *Cost of This Rule*

We estimate the costs of this proposed rule to be about \$9.0 million (\$2.9 million in present value) over the 27-year analysis period. Manufacturers of 14 CFR part 29 rotorcraft would incur costs of \$532,000 (\$293,000 in present value) and operators of 14 CFR part 29 helicopters would incur costs of \$8.5 million (\$2.6 million in present value).

#### *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 RFA requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. 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 proposed or final 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 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 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.

This proposed rule would affect rotorcraft manufacturers and rotorcraft operators. Therefore, the effect on potential small entities is analyzed separately for helicopter manufacturers and operators.

**Part 29 Helicopter Manufacturers Size Standards**

Size standards for small entities are published by the Small Business Administration (SBA) on their Web site

at <http://www.sba.gov/size>. The size standards used herein are from "SBA U.S. Small Business Administration, Table of Small Business Size Standards, Matched to North American Industry Classification System Codes." The Table is effective August 22, 2008 and uses the NAICS 2007 NAICS codes.

Helicopter manufacturers are listed in the above Table under Sector 31-33—Manufacturing; Subsector 336—Transportation Equipment Manufacturing; NAICS Code 336411—Aircraft Manufacturing. The small entity size standard is 1,500 employees.

Table R1 shows the three U.S. part 29 helicopter manufacturers, Bell, Erickson Air Crane and Sikorsky. Erickson Air Crane, with 800 employees, is the only part 29 helicopter manufacturer to qualify as a small entity. In addition, Erickson Air Crane currently specializes in the production of the S-64 Sky Crane and is not expected to obtain new helicopter certifications. Therefore, it is not anticipated that this proposed rule would have a significant economic impact on a substantial number of part 29 helicopter manufacturers.

Table R1							
U.S. Part 29 Helicopter Manufacturers							
Manufacturer					Annual		
No.	Name	Ultimate Owner	Employees	Small Entity	Revenues (AR)	Proposal Costs (PC)	% PC of AR
1	Bell Helicopter (A)	Textron	42,000	No	\$14.2B		
2	Erickson Air Crane (B)	None	800	Yes	N.A.		
3	Sikorsky (C)	UTC	223,100	No	\$58.7B		
<b>Notes:</b>							
(A)	<a href="http://www.Textron.com/about/company">http://www.Textron.com/about/company</a>						
(B)	<a href="http://www.tmcnet.com/usubmit/2009/02/05/3967898.htm">http://www.tmcnet.com/usubmit/2009/02/05/3967898.htm</a>						
(C)	<a href="http://www.utc.com/about_utc/fast_facts.lhtml">http://www.utc.com/about_utc/fast_facts.lhtml</a>						
							03/05/2005

**Part 29 Helicopter Operators Size Standards**

While there are only three part 29 helicopter manufacturers in the United States, there are many operators of part 29 helicopters. Each of these operators may provide only one or many services. These services range from off-shore transportation, executive transportation, fire-fighting services, Emergency Medical Services (EMS), and training to maintenance, repair, and modification services.

The SBA lists small entity size standards for air transportation under

Sector 44-45, Retail Trade, Subsector 481, Air Transportation. The small entity size standards are 1,500 employees for scheduled and nonscheduled charter passenger and freight transportation. This standard is \$28.0 million of annual revenue if the passenger or freight air transportation is off-shore marine air transportation. Finally, the small entity size standard for other—non-scheduled air transportation is \$7.0 million of annual revenue.

PHI, Inc. is one of the largest helicopter operators in the world. According to PHI's 2007 Annual Report,

in 2007 they employed approximately 2,254 full time employees and had annual revenues of \$446.4 million.

We have been unable to obtain the number of operators and the number of employees per operator. Therefore, we take the worst case scenario and assume that all operators would meet the SBA definition. Thus, this proposed rule would affect a substantial number of transport category helicopter operators.

Based on the information received from industry representatives, the cost of this proposed rule to a part 29 helicopter operator would be \$1,600 for an inspection that must be performed

every three years on each part 29 helicopter that is certificated under this proposed rule. This would be approximately \$550 per helicopter per year. According to Bell Helicopter Product Specifications for the Bell 430 (a part 29 helicopter), January 2005, the direct operating cost of one flight hour is \$671.44. Therefore, the proposed rule would add less than one direct hour of operating costs per year to a typical part 29 helicopter. Although this would be an increase in costs, it is not considered that this would be a substantial increase in costs.

Consequently, the FAA certifies that this proposed rule would not have a significant economic impact on a substantial number of part 29 rotorcraft manufacturers or operators.

#### **International Trade Impact Assessment**

The Trade Agreements Act of 1979 (Pub. L. 96–39), as amended by the Uruguay Round Agreements Act (Pub. L. 103–465), prohibits Federal agencies from establishing 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 an unnecessary obstacle to the foreign commerce of the United States, so long as the standard has a legitimate domestic objective, such as the protection of safety, and does 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 has assessed the potential effect of this proposed rule and determined that it would impose the same costs on domestic and international entities and thus has a neutral trade impact.

#### **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 (adjusted annually for inflation) in any 1 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.

#### **Executive Order 13132, Federalism**

The FAA has analyzed this proposed rule under the principles and criteria of Executive Order 13132, Federalism. We have 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.

#### **Regulations Affecting Intrastate Aviation in Alaska**

Section 1205 of the FAA Reauthorization Act of 1996 (49 U.S.C. 40113(f)) requires the Administrator, when modifying regulations in Title 14 of the CFR in any manner affecting interstate aviation in Alaska, to consider the extent to which Alaska is not served by transportation modes other than aviation, and to establish any appropriate regulatory distinctions. Because this proposed rule would apply to the certification of future designs of transport category rotorcraft and their subsequent operation, it could, if adopted, affect intrastate aviation in Alaska. The FAA therefore specifically requests comments on whether there is justification for applying the proposed rule differently in intrastate operations 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 proposed 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 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 because while it is a “significant regulatory action,” it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

#### **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.

The FAA 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 additional expense or delay. The FAA may change this proposal in light of the comments we receive.

#### *Availability of Rulemaking Documents*

You may obtain 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/](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 may also obtain 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 number 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 in 14 CFR Part 29**

Aircraft, Aviation safety.

#### **The Proposed Amendment**

In consideration of the foregoing, the Federal Aviation Administration proposes to amend Chapter I of Title 14, Code of Federal Regulations, as follows:

**PART 29—AIRWORTHINESS  
STANDARDS: TRANSPORT  
CATEGORY ROTORCRAFT**

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

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

2. Revise § 29.571 to read as follows:

**§ 29.571 Fatigue Tolerance Evaluation of Metallic Structure.**

(a) A fatigue tolerance evaluation of each principal structural element (PSE) must be performed, and appropriate inspections and retirement time or approved equivalent means must be established to avoid catastrophic failure during the operational life of the rotorcraft. The fatigue tolerance evaluation must consider the effects of both fatigue and the damage determined in paragraph (e)(4) of this section. Parts to be evaluated include PSEs of the rotors, rotor drive systems between the engines and rotor hubs, controls, fuselage, fixed and movable control surfaces, engine and transmission mountings, landing gear, and their related primary attachments.

(b) For the purposes of this section, the term—

*Catastrophic failure* means an event that could prevent continued safe flight and landing.

*Principal Structural Element (PSE)* means a structural element that contributes significantly to the carriage of flight or ground loads, and the fatigue failure of that structural element could result in catastrophic failure of the aircraft.

(c) The methodology used to establish compliance with this section must be submitted and approved by the Administrator.

(d) Considering all rotorcraft structure, structural elements, and assemblies, each PSE must be identified.

(e) Each fatigue tolerance evaluation required by this section must include:

(1) In-flight measurements to determine the fatigue loads or stresses for the PSEs identified in paragraph (d) of this section in all critical conditions throughout the range of design limitations required in § 29.309 (including altitude effects), except that maneuvering load factors need not exceed the maximum values expected in operations.

(2) The loading spectra as severe as those expected in operations based on loads or stresses determined under paragraph (e)(1) of this section, including external load operations, if applicable, and other high frequency power-cycle operations.

(3) Takeoff, landing, and taxi loads when evaluating the landing gear and other affected PSEs.

(4) For each PSE identified in paragraph (d) of this section, a threat assessment which includes a determination of the probable locations, types, and sizes of damage, taking into account fatigue, environmental effects, intrinsic and discrete flaws, or accidental damage that may occur during manufacture or operation.

(5) A determination of the fatigue tolerance characteristics for the PSE with the damage identified in paragraph (e)(4) of this section that supports the inspection and retirement times, or other approved equivalent means.

(6) Analyses supported by test evidence and, if available, service experience.

(f) A residual strength determination is required to establish the allowable damage size. In determining inspection intervals based on damage growth, the residual strength evaluation must show that the remaining structure, after damage growth, is able to withstand design limit loads without failure within its operational life.

(g) The effect of damage on stiffness, dynamic behavior, loads, and functional performance must be considered.

(h) Based on the requirements of this section, inspections and retirement times or approved equivalent means must be established to avoid catastrophic failure. The inspections and retirement times or approved equivalent means must be included in the Airworthiness Limitations Section of the Instructions for Continued Airworthiness required by Section 29.1529 and Section A29.4 of Appendix A of this part.

(i) If inspections for any of the damage types identified in paragraph (e)(4) of this section cannot be established within the limitations of geometry, inspectability, or good design practice, then supplemental procedures, in conjunction with the PSE retirement time, must be established to minimize the risk of occurrence of these types of damage that could result in a catastrophic failure during the operational life of the rotorcraft.

Issued in Washington, DC, on March 7, 2010.

**Kalene C. Yanamura,**

*Acting Director, Aircraft Certification Service.*

[FR Doc. 2010–5486 Filed 3–11–10; 8:45 am]

**BILLING CODE 4910–13–P**

**DEPARTMENT OF TRANSPORTATION**

**National Highway Traffic Safety  
Administration**

**49 CFR Part 575**

[Docket No. NHTSA–2010–0018]

**Notice of Public Meeting; Tire Fuel  
Efficiency**

**AGENCY:** National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

**ACTION:** Proposed rule; notice of public meeting.

**SUMMARY:** On June 22, 2009, NHTSA published a notice of proposed rulemaking (NPRM) proposing a new consumer information program for replacement tires (74 FR 29542). The new consumer information program responded to a requirement in the Energy Independence and Security Act of 2007 (EISA), which directed NHTSA to develop a national tire fuel efficiency rating system and consumer education program for replacement tires. The program would inform consumers about the effect of tires on fuel efficiency, safety and durability.

Prior to the NPRM, NHTSA conducted focus group studies in which it presented several labels using different graphics and scales to relay the ratings proposed in the NPRM. After the NPRM was issued, NHTSA conducted an internet survey to further explore what influences consumers' tire purchasing decisions and how best to convey the information in this new program to consumers.

To further refine the consumer education portion of this new program, NHTSA intends to conduct further consumer research. NHTSA invites interested parties to submit written comments and participate in a public meeting on the research plan using the instructions set forth in this notice. As described in the Procedural Matters section of this notice, each speaker should anticipate speaking for approximately ten minutes, although we may need to adjust the time for each speaker if there is a large turnout. To facilitate discussion, NHTSA has placed documents concerning early research, and the draft research plan for the future in the docket. NHTSA will consider the public comments received in developing a research plan to aid in the development of consumer information requirements and NHTSA's consumer education plan regarding tire fuel efficiency.

**DATES:** *Public Meeting:* The public meeting will be held on Friday, March