



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 27 and 29

[Docket No.: FAA-2016-9275; Amdt. No(s). 27-50, 29-57]

RIN 2120-AK91

Rotorcraft Pilot Compartment View

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is revising its rules for pilot compartment view to allow ground tests to demonstrate compliance for night operations. The requirement for night flight testing to demonstrate compliance is not necessary in every case. The revision will relieve the burden of performing a night flight test under certain conditions.

DATES: Effective [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For information on where to obtain copies of rulemaking documents and other information related to this final rule, see “How To Obtain Additional Information” in the SUPPLEMENTARY INFORMATION section of this document.

FOR FURTHER INFORMATION CONTACT: For technical questions concerning this action, contact Clark Davenport, Aviation Safety Engineer, Safety Management Group, Rotorcraft Directorate, FAA, 10101 Hillwood Pkwy, Fort Worth, TX 76177; telephone (817) 222-5151; email Clark.Davenport@faa.gov.

SUPPLEMENTARY INFORMATION:

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, Sections 44701 and 44704. Under section 44701, the FAA is charged with prescribing regulations promoting safe flight of civil aircraft in air commerce by prescribing minimum standards required in the interest of safety for the design and performance of aircraft. Under section 44704, the Administrator issues 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 promotes safety by updating the existing minimum prescribed standards used during the type certification process to address an equivalent method of showing compliance.

I. Background

A. Statement of the Problem

The FAA's rules on airworthiness standards for the pilot compartment in rotorcraft and the requirements for each pilot's view from that compartment are located in parts 27 and 29 of title 14 of the Code of Federal Regulations (14 CFR). Specifically, §§ 27.773(a) and 29.773(a) require that each pilot compartment must be free of glare and reflection that could interfere with the pilot's view. Sections 27.773(b) and 29.773(b) require a flight test to show compliance with paragraph (a) of their respective sections if certification for night operations

is requested. While this requirement applies to all applicants for rotorcraft installations that may affect the pilot's ability to see outside the aircraft, the FAA finds that a flight test may not be the only means available to show compliance for some modifications. The purpose of the internal lighting tests is to determine whether the lighting creates glare and reflections within the cockpit that could interfere with the pilot's view outside of the aircraft.

The FAA has conducted rotorcraft ground and flight internal lighting tests over the past 15 years where all external lighting was blocked from entering the cockpit on the ground evaluation and then conducted the follow-on night flight tests. They found that the ground test results were the same as the flight tests. Based on this experience, the FAA concluded that the two tests will provide the same results. The FAA has determined that creating an environment where external light is blocked from entering the cockpit or where the rotorcraft is placed in a darkened hangar or paint booth, provides the same environment as a night flight test would for cockpit lighting evaluations. The FAA has concluded that a ground test provides the same level of safety and that the current requirements in §§ 27.773 and 29.773 for a night flight test are imposing an unnecessary economic burden on applicants for certification for night operations.

B. Summary of the NPRM

On October 17, 2016, the FAA published a notice of proposed rulemaking (NPRM), "Rotorcraft Pilot Compartment View" (81 FR 71412). The FAA proposed to allow a ground test as an alternative to a night flight test in certain cases to show compliance for night operations. The FAA included two Draft Advisory Circulars,(AC) 27-1B, Certification of Normal Category Rotorcraft and AC 29-2C, Certification of Transport Category Rotorcraft,

setting forth the conditions under which a ground test would be acceptable and an acceptable means of compliance for the ground test.¹

The original comment period closed on November 16, 2016. However, the FAA did not post the associated draft advisory circulars (AC) for public display until November 9, 2016. As a result, the FAA reopened the comment period (81 FR 83744) until December 13, 2016.

II. Discussion of Public Comments and Final Rule

The FAA received comments from three aviation companies (Aviation Specialists Unlimited, Inc., Garmin International, and The Boeing Company) and three individuals. Two of the aviation companies and an individual supported the proposed rule. The remaining commenters supported the rule but suggested changes, which are discussed below.

A. Ground Test Criteria

An individual requested the FAA clearly define when a ground test can and cannot be performed and address factors such as the amount of interior light emissions, exterior light emissions, color of light emissions, and focal point of light intensity.

The FAA notes that Advisory Circular (AC) 27-1B, Certification of Normal Category Rotorcraft and AC 29-2C, Certification of Transport Category Rotorcraft address the individual's comments. AC 27-1B and AC 29-2C already provide qualitative general guidance to determine appropriate testing methods.²

B. Validation of Ground Testing

¹ http://rgl.faa.gov/Regulatory_and_Guidance_Library/

² Advisory Circular (AC) 27-1B and AC 29-2C will be posted in Docket No. FAA-2016-9275.

An individual requested the FAA conduct tests to analyze specific proficiencies and deficiencies of simulated night ground testing. Alternatively, if there is already empirical and observational evidence that proves the safety factors in ground testing, the commenter requested this be identified in the final rule.

The FAA's determination that a ground test provides the same level of safety is based on the FAA's experience with cockpit lighting evaluations for rotorcraft certification projects. The FAA found the two tests had the same results.

C. Requirements for Night Testing

Two individuals requested that night testing account for various lighting scenarios. One of these individuals requested the FAA conduct tests to ensure the accuracy of each ground test simulation using both interior and exterior lighting effects on the rotorcraft windshield and visibility. Another individual requested that testing account for different outside lighting scenarios through multiple ground tests, in both a well-lit airfield and a dark hanger.

The intent of this rule is to allow ground tests, under certain circumstances, to demonstrate compliance for night operations. The FAA notes the request to add additional night testing requirements is beyond the scope of this rulemaking. In light of the comments, the FAA recognizes the material in the AC regarding exterior lighting may create confusion. As a result, we have revised the AC to clarify that exterior lighting is identified as exterior aircraft lighting only.

D. Eliminate Testing Requirement

An aviation company requested that the FAA eliminate the requirement to perform either a ground test or a flight test and require instead that applicants show "compliance." In

support of this request, the commenter stated the FAA and industry are generally in agreement that regulations be performance-based without specifying a means of compliance which, instead, is established through policy, guidance, or industry standards.

The requested change to eliminate testing would compromise the level of safety intended by this rule. Because of the complexity and variables involved in lighting interaction in rotorcraft cockpits, the FAA has determined that either a night flight test or a ground test is required.

The FAA is adopting the rule as proposed.

IV. Regulatory Notices and Analyses

A. Regulatory Evaluation

Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 and Executive Order 13563 direct 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 (Public Law 96-354) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (Public Law 96-39) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, the 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 (Public Law 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).

In conducting these analyses, FAA has determined that this proposed rule: (1) has regulatory cost savings, (2) is not an economically “significant regulatory action” as defined in section 3(f) of Executive Order 12866, (3) is not “significant” as defined in DOT’s Regulatory Policies and Procedures; (4) would not have a significant economic impact on a substantial number of small entities; (5) would not create unnecessary obstacles to the foreign commerce of the United States; and (6) would not impose an unfunded mandate on state, local, or tribal governments, or on the private sector by exceeding the threshold identified above. These analyses are summarized below.

This portion of the preamble summarizes the FAA’s analysis of the economic impacts of this rule.

The FAA determined that this action will likely result in regulatory cost savings. The current regulations require night flight testing to demonstrate compliance for night operations. This rule provides a less costly ground test as an alternative to a night flight test for certain interior lighting modifications. Currently, the FAA estimates the total cost for a night flight test to be \$37,280. These costs include company costs associated with a ground evaluation (\$3,600); company flight test, including flight preparation (\$16,240); company preparation of the test report (\$800); and FAA flight test, including flight preparation (\$16,640). Under this final rule, companies can demonstrate compliance on the ground, thereby avoiding the company and FAA flight test costs and saving an estimated \$32,880 per demonstration. Under this rule, the total cost for a ground test is about \$4,400, which is substantially less costly than a night flight test of \$37,280.

The FAA estimates that 10,506 helicopters in the current fleet will be affected by the final rule. In addition, the FAA receives approximately 120 certification project tests annually. Note that after certification, new helicopters may not need to be upgraded in the next 10 years.³ However, the other helicopters will need at least 1 cockpit illumination upgrade within the next 10 years based on FAA data. In particular, approximately 4,000 rotorcraft will have to upgrade their automatic dependent surveillance-broadcast (ADS-B) in the first 3 years after the rule goes into effect.⁴ All of the remaining 6,506 are expected to have cockpit lighting night testing due to upgrading communication, surveillance systems, or navigation/electronic indicators in the remaining 7 years.⁵

As a result, this rule will relieve industry from performing higher cost night flight tests with lower cost ground tests resulting in cost savings. The FAA estimates industry will gain about \$384.9 million in total undiscounted cost savings over a 10-year period of analysis [$\$32,880 \times (10,506 \text{ tests} + 1,200 \text{ certification projects})$]. The FAA estimates industry's present value cost savings to be about \$277.2 million and annualized costs savings to be about \$39.5 million using a 7 percent discount rate. The following table provides cost savings to industry over a 10-year period of analysis.

Industry Cost Savings of Forgone Night Flight Tests						
Year	Number of Tests			Cost Savings (\$)*		
	Certification Tests	Rotorcraft Tests	Total	Undiscounted	Present Value at 7%	Present Value at 3%
1	120	1,333	1,453	47,785,600	44,659,439	46,393,786
2	120	1,333	1,453	47,785,600	41,737,794	45,042,511

³ As a result, we do not include new helicopters in this analysis.

⁴ This is due to the requirements in 14 CFR 91.225, which requires equipage by January 1, 2020. At the time of this analysis, this equates to about 1,333 per year in the first three years. The actual number of ADS-B related upgrades available for cost savings may vary from this analysis depending on the publication and implementation of this rule and the ability of all operators to equip ADS-B by January 1, 2020.

⁵ This equates to about 929 per year in the remaining seven years of the period of analysis.

3	120	1,333	1,453	47,785,600	39,007,284	43,730,593
4	120	929	1,049	34,505,211	26,323,861	30,657,433
5	120	929	1,049	34,505,211	24,601,739	29,764,498
6	120	929	1,049	34,505,211	22,992,279	28,897,571
7	120	929	1,049	34,505,211	21,488,112	28,055,895
8	120	929	1,049	34,505,211	20,082,347	27,238,733
9	120	929	1,049	34,505,211	18,768,549	26,445,371
10	120	929	1,049	34,505,211	17,540,700	25,675,118
Total	1,200	10,500	11,700	384,893,280	277,202,103	331,901,510
Annualized					39,467,343	38,908,982

* The cost savings estimates in this table use \$32,880 per forgone rotorcraft night flight test (e.g., in the first year, the undiscounted cost savings = \$32,880 x 1,453 rotorcraft = \$47.8 million).

This rule will also save the FAA about \$1,200 per forgone night flight test from the associated preparation and reviewing of test flight plans, reports, and testing time. The FAA will save about \$14 million (undiscounted) over a 10-year period of analysis [\$1,200 x (10,506 tests + 1,200 certification projects)]. The FAA estimates its 10-year present value cost savings to be about \$10 million and the annualized cost savings to be about \$1.4 million at a 7 percent discount rate.

B. Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (Public Law 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.

This rule provides a ground test as an alternative to a night flight test in certain cases, such as internal lighting modifications. The requirements for a ground test are less costly and stringent than a night flight test. Thus, this rule will relieve the industry from the costly burden of performing night flight tests under certain conditions. The rule will result in cost savings for small entities affected by this rulemaking action.

If an agency determines that a rulemaking will not result in a significant economic impact on a substantial number of small entities, the head of the agency may so certify under section 605(b) of the RFA. Therefore, as provided in section 605(b), the head of the FAA certifies that this rulemaking will not result in a significant economic impact on a substantial number of small entities.

C. International Trade Impact Assessment

The Trade Agreements Act of 1979 (Public Law 96-39), as amended by the Uruguay Round Agreements Act (Public Law 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 rule and determined that it will only have a domestic impact and, therefore, no effect on international trade.

D. Unfunded Mandates Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (Public Law 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 \$155 million in lieu of \$100 million. This rule does not contain such a mandate; therefore, the requirements of Title II of the Act do not apply.

E. 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. The FAA has determined that there is no new requirement for information collection associated with this final rule.

F. International Compatibility and Cooperation

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 regulations.

G. Environmental Analysis

FAA Order 1050.1F identifies FAA actions that are categorically excluded from preparation of an environmental assessment or environmental impact statement under the National Environmental Policy Act in the absence of extraordinary circumstances. The FAA has determined this rulemaking action qualifies for the categorical exclusion identified in paragraph 5-6.6 and involves no extraordinary circumstances.

V. Executive Order Determinations

A. Executive Order 13132, Federalism

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

B. Executive Order 13211, Regulations that Significantly Affect Energy Supply,

Distribution, or Use

The FAA analyzed this rule under Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). The FAA has determined that this action will not be a “significant energy action” under the

executive order and will not likely to have a significant adverse effect on the supply, distribution, or use of energy.

C. Executive Order 13609, International Cooperation

Executive Order 13609, Promoting International Regulatory Cooperation, promotes international regulatory cooperation to meet shared challenges involving health, safety, labor, security, environmental, and other issues and to reduce, eliminate, or prevent unnecessary differences in regulatory requirements. The FAA has analyzed this action under the policies and agency responsibilities of Executive Order 13609, and has determined that this action will have no effect on international regulatory cooperation.

D. Executive Order 13771, Reducing Regulation and Controlling Regulatory Costs

This final rule is considered an EO 13771 deregulatory action. Details on the estimated cost savings of this final rule can be found in the rule's economic analysis, above.

VI. How To Obtain Additional Information

A. Rulemaking Documents

An electronic copy of a rulemaking document may be obtained by using the Internet.

1. Search the Federal eRulemaking Portal (<http://www.regulations.gov>);
2. Visit the FAA's Regulations and Policies Web page at http://www.faa.gov/regulations_policies/ or
3. Access the Government Publishing Office's Web page at <http://www.gpo.gov/fdsys/>.

Copies may also be obtained by sending a request (identified by notice, amendment, or docket number of this rulemaking) to the Federal Aviation Administration, Office of

Rulemaking, ARM-1, 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267-9680.

B. Comments Submitted to the Docket

Comments received may be viewed by going to <http://www.regulations.gov> and following the online instructions to search the docket number for this action. Anyone is able to search the electronic form of all comments received into any of the FAA's dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.).

C. Small Business Regulatory Enforcement Fairness Act

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

List of Subjects

14 CFR Part 27

Aircraft, Aviation safety.

14 CFR Part 29

Aircraft, Aviation safety.

The Amendment

In consideration of the foregoing, the Federal Aviation Administration amends chapter I of title 14, Code of Federal Regulations as follows:

PART 27- AIRWORTHINESS STANDARDS: NORMAL CATEGORY

ROTORCRAFT

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

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

2. Amend § 27.773 by revising paragraph (b) to read as follows:

§ 27.773 Pilot compartment view.

* * * * *

(b) If certification for night operation is requested, compliance with paragraph (a) of this section must be shown by ground or night flight tests.

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PART 29- AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY

ROTORCRAFT

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

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

4. Amend § 29.773 by revising paragraph (a)(2) to read as follows:

§ 29.773 Pilot compartment view.

(a) * * *

(2) Each pilot compartment must be free of glare and reflection that could interfere with the pilot's view. If certification for night operation is requested, this must be shown by ground or night flight tests.

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Issued under authority provided by 49 U.S.C. 106(f), 44701(a), and
44703 in Washington, DC.

Daniel K. Elwell
Acting Administrator

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