

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Part 27**

[Docket No. 29247; Amendment No. 27-37]

RIN 2120-AF33

Normal Category Rotorcraft Maximum Weight and Passenger Seat Limitation**AGENCY:** Federal Aviation Administration (FAA), DOT.**ACTION:** Final rule.

SUMMARY: This final rule amends the airworthiness standards for normal category rotorcraft. This rule increases the maximum weight limit from 6,000 to 7,000 pounds, updates the safety standards, and adds a passenger seat limitation of nine. These changes offset the increased weight imposed by additional requirements such as recent requirements to improve occupant survivability in the event of an accident.

EFFECTIVE DATE: October 18, 1999.**FOR FURTHER INFORMATION CONTACT:**

Lance Gant, Rotorcraft Standards Staff, Rotorcraft Directorate, Aircraft Certification Service, Fort Worth, Texas 76193-0110, telephone (817) 222-5114, fax 817-222-5959.

SUPPLEMENTARY INFORMATION:**Availability of Final Rules**

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Internet users may reach the FAA's web page at <http://www.faa.gov/avr/arm/nprm/nprm.htm> or the GPO's web page at <http://www.access.gpo.gov/nara> for access to recently published rulemaking documents.

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Small Entity Inquiries

If your organization is a small entity and you have a question, contact your local FAA official. If you do not know how to contact your local FAA official, you may contact Charlene Brown, Program Analyst Staff, Office of Rulemaking, ARM-27, Federal Aviation Administration (FAA), 800 Independence Avenue, SW, Washington, DC 20591, 888-551-1594. Internet users can find additional information on SBREFA in the "Quick Jump" section of the FAA's web page at <http://www.faa.gov> and may send electronic inquiries to the following Internet address: 9-AWA-SBREFA@faa.gov.

Background

This final rule is based on NPRM No. 98-4 published in the **Federal Register** on June 25, 1998 (63 FR 34610). That notice proposed to amend the airworthiness standards for normal category rotorcraft, 14 CFR part 27 (part 27), based on ARAC recommendations.

A previous notice in the **Federal Register** (60 FR 4221, January 20, 1995) established the ARAC Gross Weight and Passenger Issues for Rotorcraft Working Group (GWWG). The notice tasked the GWWG to determine the appropriate course of action for increasing the maximum weight and passenger seat limitations for normal category rotorcraft. The GWWG included representatives from manufacturers. Aerospace Industries Association of America (AIA), the European Association of Aerospace Industries (AECA), the European Joint Aviation Authorities (JAA), Transport Canada, and the FAA Rotorcraft Directorate.

The GWWG submitted recommendations to increase the maximum gross weight limitation to 7,000 pounds and to add a passenger seat limitation of nine. The changes compensate for the increases in weight resulting from additional part 27 requirements and operational and design trends. An increase in maximum weight to 7,000 pounds will allow the design and production of helicopters to carry nine passengers.

The GWWG recommended additional requirements to part 27 to support a potential increase of passengers if the changes (1) related to safety for additional passengers, (2) related to safety for increased weight, or (3) resulted in little or no increase in cost of weight.

The GWWG made the following the following recommendations regarding previously certificate rotorcraft: (1) Limit certification to seven passengers

(regardless of maximum weight), (2) permit an increase in passengers only if the applicant revises the certification basis and complies with part 27 at this amendment level, and (3) permit an applicant to increase the rotorcraft maximum weight above 6,000 pounds if the seating capacity remains as certificated on October 18, 1999.

The GWWG made the preceding recommendations to the ARAC. The ARAC recommended that the FAA revise the normal category rotorcraft airworthiness standards. The JAA will harmonize the Joint Aviation Requirements (JAR) concurrently with this final rule. The FAA evaluated the ARAC recommendations, made its proposals in NPRM 98-4, and invited comments.

Discussion of Comments

The FAA considered comments from all four commenters. Two commenters favored adopting the rule as proposed. Two other commenters agreed that rule changes were needed but offered the following comments:

One commenter asked why part 27 did not allow a weight limit of 12,500 pounds as does part 23. Allowing a weight limit of 12,500 pounds is beyond the scope of the current rulemaking. The FAA has not ruled out future action to further increase the normal category weight limit. However, further increases in weight limit may necessitate additional requirements to part 27 to maintain an acceptable level of safety.

The commenter wanted the rule to require crash resistant fuel cells. The FAA agrees that crash resistant fuel cells enhance safety and currently requires crash resistant fuel systems for rotorcraft certificated to Amendment 27-30 dated October 2, 1994 (59 FR 50386).

The commenter stated that the sentence "This must be shown by test" proposed in § 27.805(b) was open to interpretation. The FAA disagrees. This language mirrors § 29.805(b) in effect since February 25, 1968. To date, there has been no confusion as to its interpretation. Advisory material covering this requirement is readily available. The words "This must be shown by test" mean that emergency evacuations must be physically performed during type certification testing.

The commenter stated, "The inclusion of as many exit routes as possible would be nice, but things such as rotor clearance (in the case of a top hatch) would need addressing." The FAA agrees that a thorough evaluation of any crew emergency exit configuration is needed. An evaluation of the location of the exits in

determining compliance with § 27.805, paragraphs (a) and (b), would include consideration of possible obstructions that may render an exit unusable or hazardous, for example, the proximity of the main rotor in the case of a top hatch.

The commenter further suggested using wording similar to part 23 for pilot compartment emergency exits in § 27.805. The wording proposed by the FAA in § 27.805, paragraphs (a) and (b) is similar to the wording in § 23.805, paragraphs (a) and (b). The remainder of proposed § 27.805 is the same as part 23 and only diverges to address differences in aircraft category. Therefore, § 27.805 is adopted as proposed.

Another commenter suggested adding the word "on" after "of this part in effect" in § 27.2(b)(1) and deleting the word "previously" in § 27.2(b)(2)(i). The FAA agrees and has incorporated the nonsubstantive changes.

Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), there are no requirements for information collection associated with this final rule.

International Compatibility

The FAA has reviewed corresponding International Civil Aviation Organization international standards and recommended practices and JAA regulations, where they exist, and has identified no material differences in these amendments and the foreign regulations.

Regulatory Evaluation Summary

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 requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Office of Management and Budget directs agencies to assess the effects of regulatory changes on international trade. And 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). In conducting these analyses, the FAA has determined that

this final rule: (1) generates benefits that justify its costs and is not a "significant regulatory action" as defined in Executive Order 12866 or as defined in DOT's Regulatory Policies and Procedures; (2) does not have a significant economic impact on a substantial number of small entities; (3) has minimal effects on international trade; and (4) does not contain a significant intergovernmental or private sector mandate. These analyses, available in the docket, are summarized as follows.

Cost-Benefit Analysis

The final rule adds passenger safety related requirements commensurate with allowing some rotorcraft to increase passenger capacity. With one exception, no part 29 rotorcraft currently being manufactured has a maximum gross weight of fewer than 7,000 pounds. As the cost per pound per mile decreases as the load approaches a rotorcraft's maximum carrying capacity, the absence of part 29 rotorcraft in the 6,000 pound to 7,000 pound range indicates that this gap will be filled more efficiently by rotorcraft certificated under part 27. This final rule permits part 27 rotorcraft to fill this gap and to provide cost savings to some manufacturers and operators. It also eliminates an applicant's need to apply for an exemption to the maximum weight requirement for a future part 27 type certificate and thereby saves between \$10,000 and \$18,000 in paperwork costs per eliminated exemption application. In addition, it eliminates the FAA's time and resources to review and to process the exemption application. Thus, the FAA concludes that this final rule imposes no or negligible compliance costs and will generate some cost savings.

Safety benefits will arise as manufacturers develop new, heavier part 27 rotorcraft (that will be certificated based on the most recent part 27 standards) to replace some older part 27 certificated models. The increased weight also benefits some part 27 Emergency Medical Services (EMS) rotorcraft that now must limit fuel loads and/or their effective ranges in order to carry all of the necessary medical equipment while remaining under the 6,000-pound maximum weight. Finally, the increased allowable payload weight may permit the transport of more than one victim, an important consideration for more rapid transportation when there are multiple victims and only one available EMS rotorcraft.

Regulatory Flexibility Determination

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

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the determination finds that it will, the agency must prepare a Regulatory Flexibility Analysis (RFA) as described in the Act.

The FAA conducted the required review of this revised rule and determined that it does not have a significant economic impact on a substantial number of small entities. The revised rule is expected to produce annualized incremental cost savings of \$10,000 to \$18,000 per applicant. While this would be beneficial to a rotorcraft manufacturer, it does not affect either the competitiveness or solvency of any small business. Accordingly, pursuant to the Regulatory Flexibility Act, 5 U.S.C. 605(b), the FAA certifies that this rule will not have a significant economic impact on a substantial number of small entities.

International Trade Impact Assessment

Consistent with the Administration's belief in the general superiority, desirability, and efficacy of free trade, it is the policy of the Administrator to remove or diminish, to the extent feasible, barriers to international trade, including both barriers affecting the export of American goods and services to foreign countries and those affecting the import of foreign goods and services into the United States.

In accordance with that policy, the FAA is committed to develop as much as possible its aviation standards and practices in harmony with its trading partners. Significant cost savings can result from this, both to American companies doing business in foreign markets, and foreign companies doing business in the United States.

This final rule is harmonized with the JAR and will thereby reduce differences between U.S., European, and Canadian

airworthiness standards and will reduce barriers to trade.

Federalism Implications

The regulations herein would not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this rule would not have sufficient federalism implications to warrant the preparation of the Federalism Assessment.

Unfunded Mandates Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (the Act), enacted as Pub. L. 104-4 on March 22, 1995, requires each Federal agency, to the extent permitted by law, to prepare a written assessment of the effects by any Federal mandate in a proposed or final agency rule that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million or more (adjusted annually for inflation) in any one year. Section 204(a) of the Act, 2 U.S.C. 1534(a), requires the Federal agency to develop an effective process to permit timely input by elected officers (or their designees) of State, local, and tribal governments on a proposed "significant intergovernmental mandate." A "significant intergovernmental mandate" under the Act is any provision in a Federal agency regulation that will impose an enforceable duty upon State, local, and tribal governments, in the aggregate, of \$100 million (adjusted annually for inflation) in any one year. Section 203 of the Act, 2 U.S.C. 1533, which supplements section 204(a), provides that before establishing any regulatory requirements that might significantly or uniquely affect small governments, the agency shall have developed a plan that, among other things, provides for notice to potentially affected small governments, if any, and for a meaningful and timely opportunity to provide input in the development of regulatory proposals.

The FAA determines that this rule will not contain a significant intergovernmental or private sector mandate as defined by the Act.

Environmental Analysis

FAA Order 1050.1D defines actions that may be categorically excluded from preparation of a National Environmental Policy Act (NEPA) environmental assessment or environmental impact statement. In accordance with FAA

Order 1050.1D, appendix 4, paragraph 4(j), this rulemaking action qualifies for a categorical exclusion.

Energy Impact

The energy impact of the rulemaking action has been assessed in accordance with the Energy Policy and Conservation Act (EPCA) and Public Law 94-163, as amended (42 U.S.C. 6362). It has been determined that it is not a major regulatory action under the provisions of the EPCA.

List of Subjects in 14 CFR Part 27

Air transportation, Aircraft, Aviation safety, Rotorcraft, Safety.

The Amendment

In consideration of the foregoing, the Federal Aviation Administration amends part 27 of Chapter 1, Title 14 of the 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. Revise § 27.1(a) to read as follows:

§ 27.1 Applicability.

(a) This part prescribes airworthiness standards for the issue of type certificates, and changes to those certificates, for normal category rotorcraft with maximum weights of 7,000 pounds or less and nine or less passenger seats.

* * * * *

3. Amend § 27.2 by redesignating the introductory text and paragraphs (a), (b), (c), (d) introductory text, (d)(1), and (d)(2) as paragraphs (a) introductory text, (a)(1), (a)(2), (a)(3), (a)(4) introductory text, and (a)(4)(i) and (a)(4)(ii) respectively and adding a new paragraph (b) to read as follows:

§ 27.2 Special retroactive requirements.

* * * * *

(b) For rotorcraft with a certification basis established prior to October 18, 1999—

(1) The maximum passenger seat capacity may be increased to eight or nine provided the applicant shows compliance with all the airworthiness requirements of this part in effect on October 18, 1999.

(2) The maximum weight may be increased to greater than 6,000 pounds provided—

(i) The number of passenger seats is not increased above the maximum

number certificated on October 18, 1999, or

(ii) The applicant shows compliance with all of the airworthiness requirements of this part in effect on October 18, 1999.

4. Amend § 27.610 by revising the section heading and by adding paragraph (d) to read as follows:

§ 27.610 Lightning and static electricity protection.

* * * * *

(d) The electrical bonding and protection against lightning and static electricity must—

(1) Minimize the accumulation of electrostatic charge;

(2) Minimize the risk of electric shock to crew, passengers, and service and maintenance personnel using normal precautions;

(3) Provide an electrical return path, under both normal and fault conditions, on rotorcraft having grounded electrical systems; and

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

5. Add § 27.805 to read as follows:

§ 27.805 Flight crew emergency exits.

(a) For rotorcraft with passenger emergency exits that are not convenient to the flight crew, there must be flight crew emergency exits, on both sides of the rotorcraft or as a top hatch in the flight crew area.

(b) Each flight crew emergency exit must be of sufficient size and must be located so as to allow rapid evacuation of the flight crew. This must be shown by test.

(c) Each flight crew emergency exit must not be obstructed by water or flotation devices after an emergency landing on water. This must be shown by test, demonstration, or analysis.

6. Revise § 27.807 to read as follows:

§ 27.807 Emergency exits.

(a) *Number and Location.*

(1) There must be at least one emergency exit on each side of the cabin readily accessible to each passenger. One of these exits must be usable in any probable attitude that may result from a crash;

(2) Doors intended for normal use may also serve as emergency exits, provided that they meet the requirements of this section; and

(3) If emergency flotation devices are installed, there must be an emergency exit accessible to each passenger on each side of the cabin that is shown by test, demonstration, or analysis to;

(i) Be above the waterline; and

(ii) Open without interference from flotation devices, whether stowed or deployed.

(b) *Type and operation.* Each emergency exit prescribed by paragraph (a) of this section must—

(1) Consist of a movable window or panel, or additional external door, providing an unobstructed opening that will admit a 19-by 26-inch ellipse;

(2) Have simple and obvious methods of opening, from the inside and from the outside, which do not require exceptional effort;

(3) Be arranged and marked so as to be readily located and opened even in darkness; and

(4) Be reasonably protected from jamming by fuselage deformation.

(c) *Tests.* The proper functioning of each emergency exit must be shown by test.

(d) *Ditching emergency exits for passengers.* If certification with ditching provisions is requested, the markings required by paragraph (b)(3) of this section must be designed to remain visible if the rotorcraft is capsized and the cabin is submerged.

§ 27.853 [Amended]

7. Amend § 27.853 in paragraph (a) by removing the word “flash” and inserting the word “flame” in its place and by removing and reserving paragraph (b).

8. Section 27.1027 is amended by redesignating paragraphs (a) through (d) as paragraphs (b) through (e); in redesignated paragraph (c)(2), by

removing “(b)(3)” and adding “(c)(3)” in its place; in redesignated paragraph (d) by removing “(b)” each place it appears and adding “(c); and by adding a new paragraph (a) to read as follows:

§ 27.1027 Transmissions and gearboxes: General.

(a) The lubrication system for components of the rotor drive system that require continuous lubrication must be sufficiently independent of the lubrication systems of the engine(s) to ensure lubrication during autorotation.

* * * * *

9. In § 27.1185, a new paragraph (d) is added to read as follows:

§ 27.1185 Flammable fluids.

* * * * *

(d) Absorbent materials close to flammable fluid system components that might leak must be covered or treated to prevent the absorption of hazardous quantities of fluids.

10. Revise § 27.1187 to read as follows:

§ 27.1187 Ventilation and drainage.

Each compartment containing any part of the powerplant installation must have provision for ventilation and drainage of flammable fluids. The drainage means must be—

(a) Effective under conditions expected to prevail when drainage is needed, and

(b) Arranged so that no discharged fluid will cause an additional fire hazard.

11. In § 27.1305, add a new paragraph (v) to read as follows:

§ 27.1305 Powerplant instruments.

* * * * *

(v) Warning or caution devices to signal to the flight crew when ferromagnetic particles are detected by the chip detector required by § 27.1337(e).

12. Revise § 27.1337(e) to read as follows:

§ 27.1337 Powerplant instruments.

* * * * *

(e) Rotor drive system transmissions and gearboxes utilizing ferromagnetic materials must be equipped with chip detectors designed to indicate the presence of ferromagnetic particles resulting from damage or excessive wear. Chip detectors must—

(1) Be designed to provide a signal to the device required by § 27.1305(v) and be provided with a means to allow crewmembers to check, in flight, the function of each detector electrical circuit and signal.

(2) [Reserved]

Issued in Washington, DC on August 12, 1999.

Jane F. Garvey,

Administrator.

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