

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration**

14 CFR Part 61

[Docket No. 28095; SFAR No. 73]

RIN 2120-AF66

Robinson R-22/R-44 Special Training and Experience Requirements

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule; Request for comments.

SUMMARY: This Special Federal Aviation Regulation (SFAR) establishes special training and experience requirements for pilots operating the Robinson model R-22 or R-44 helicopters to maintain safe operation of Robinson helicopters. It also establishes special training and experience requirements for certified flight instructors conducting student instruction or flight reviews. The FAA has determined this emergency SFAR is needed to respond to the number of accidents involving the Robinson model R-22 and R-44 helicopters. The intended effect of this emergency action is to increase awareness of and training for the potential hazards of particular flight operations in the Robinson helicopters.

DATES: This final rule is effective March 27, 1995. This final rule expires December 31, 1997. Comments must be received by May 30, 1995.

ADDRESSES: Comments should be submitted in triplicate to Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-200), Docket No. 28095, 800 Independence Avenue, SW., Washington, DC 20591.

FOR FURTHER INFORMATION CONTACT: Robert J. O'Haver, Operations Branch, AFS-820, General Aviation and Commercial Division, 800 Independence Ave. SW., Washington, DC 20591; Telephone: (202) 267-7031.

SUPPLEMENTARY INFORMATION:**Comments Invited**

All interested persons are invited to comment on this SFAR by submitting such written data, views, or arguments as they may desire, including comments relating to the environmental, energy, or economic impacts. Communications should identify the regulatory docket or SFAR number, and be submitted in triplicate to the Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-200), Docket No. 28095, 800 Independence

Ave., Washington, DC 20591. All communications received will be considered by the Administrator. The rules in this SFAR may be changed as a result of comments received from the public. All comments submitted will be available for examination in the Rules Docket in Room 915-G of the FAA Building, 800 Independence Ave., Washington, DC 20591. Persons wishing to have the FAA acknowledge receipt of their comments must submit a self-addressed, stamped postcard with the following statement: "Comments to Docket Number 28095." The postcard will then be dated, time stamped, and returned by the FAA.

Availability of This SFAR

Any person may obtain a copy of this SFAR by submitting a request to the FAA, Office of Public Affairs, ATTN: APA-200, 800 Independence Avenue, SW., Washington, D.C. 20591, or by calling the Office of Public Affairs at (202) 267-3484. Persons wanting a copy of this SFAR must identify the SFAR by asking for "Docket No. 28095; Robinson R-22/R-44 Special Training and Experience Requirements Final Rule."

Persons interested in being placed on a mailing list for future notices should request a copy of Advisory Circular 11-2A, Notice of Proposed Rulemaking Distribution System, which describes the application procedure.

Background

Part 61 of Title 14 of the Code of Federal Regulations (14 CFR part 61) details the certification requirements for pilots and flight instructors. Particular requirements for pilots and flight instructors in rotorcraft are found in Subparts C through G, and Appendix B of part 61. These requirements do not address any specific type or model of rotorcraft. However, the FAA has determined that specific training and experience requirements are necessary for the safe operation of Robinson R-22 and R-44 model helicopters.

The R-22 is a 2-seat, reciprocating engine-powered helicopter that is frequently used as low-cost initial student training aircraft. The R-44 is a 4-seat helicopter with similar operating characteristics and design features of the R-22. The R-22 is the smallest helicopter in its class and incorporates a unique cyclic control and rotor system. Certain aerodynamic and design features of the aircraft cause specific flight characteristics that require particular pilot awareness and responsiveness.

Currently, there are 855 registered R-22's and three R-44's in the United States. Since the R-22 was certificated,

there have been 339 accidents in the U.S. involving R-22's. The FAA found that the R-22 met 14 CFR part 27 certification requirements and issued a type certificate in 1979; however, the R-22 has had a high number of fatal accidents due to main rotor/airframe contact when compared to other piston powered helicopters. Many of these accidents have been attributed to pilot performance or inexperience, leading to low rotor revolutions per minute (RPM) or low "G" conditions that resulted in mast bumping or main rotor-airframe contact accidents. Its small size and relatively low operating costs result in its use as a training or small utility aircraft, and its operation by a significant population of relatively inexperienced helicopter pilots.

In its analysis of accident data, the FAA has found that apparently qualified pilots may not be properly prepared to safely operate the R-22 and R-44 helicopters in certain flight conditions. The FAA has determined that additional specific pilot training is necessary for safe operation of these helicopters as part of a comprehensive program that responds to the high number of accidents involving these helicopters. Other elements of this program include addressing design and operational issues, cited by the National Transportation Safety Board (NTSB), that may have been contributing factors in some of the accidents.

In addition to the specific pilot training and experience requirements recommended by a R-22 and R-44 Flight Standardization Board established on January 8, 1995, and the subject of this SFAR, the FAA has taken several other actions to alert pilots and owners to the hazards of these helicopters. Individual notice to every certificated rotorcraft pilot, including all rotorcraft certified flight instructors who instruct in these helicopters, was given by the FAA when it issued the Special Airworthiness Alert No. ASW-95-01 on January 10, 1995. This alert, provided specific guidance in avoiding and dealing with low rotor RPM and low G conditions. This guidance was made mandatory when the FAA issued to all owners of these helicopters Airworthiness Directives Nos. 95-02-03 and 95-02-04 on January 12, 1995, which amended these helicopters' operating envelope by limiting operations in certain atmospheric conditions, such as turbulence, and reduced operating speed in turbulent conditions to avoid the situations described in the Alert. Finally, the FAA is undertaking an aggressive engineering and design review of these helicopters and their operations as well as

evaluating potential design improvement for the Robinson helicopters.

Discussion

The FAA has determined, after reviewing the NTSB accident reports of 30 fatal accidents since 1982 in which main rotor/airframe contact occurred, that certain flight maneuvers caused, or contributed to, the accidents. In four recent R-22 and R-44 accidents, main rotor/airframe contact occurred while the helicopters were apparently well within the aircraft's defined operating envelope. Although the pilots assumed to be operating the flight controls at the time of the accidents had little experience, the investigations found no evidence that the pilots were improperly operating the helicopters.

There is a clear relationship between pilot inexperience in the R-22 and R-44 helicopters and main rotor/airframe contact accidents. An analysis of this type of accident, indicates that in 23 of the 30 fatal accidents, the pilot apparently manipulating the controls had less than 200 flight hours in helicopters or less than 50 flight hours in the model of Robinson helicopter they were operating. It appears that pilots with more than a minimal level of experience are more likely to recognize situations that would cause this type of accident. However, the FAA has determined that all pilots, regardless of their level of experience, need to have a greater awareness of the flight conditions that have led to these accidents and a capability to respond appropriately when those conditions are encountered. Accordingly, the agency is initiating a two-fold program, including ground and flight training. For pilots that have 200 flight hours in helicopters and at least 50 hours in either the R22 or R44 Robinson helicopter, as appropriate, flight training would not be required because of their overall experience, and their specific experience in the Robinson helicopter. For rated pilots who do not have this experience and students pilots, there are specific flight training requirements. In both cases, the intent is to ensure that the pilots, either through accumulated experience or flight training, have the skills necessary to avoid, as well as react to, situations that can cause main rotor/airframe contact. While experience is beneficial in avoiding this type of accident, the FAA believes that there is a need for all pilots operating the Robinson helicopters to be aware of certain characteristics associated with the Robinson R22 and R44 helicopter. For this reason, the FAA is imposing an awareness training requirement on all

individuals operating Robinson R22 and R44 aircraft.

In addition, the FAA is requiring that any pilot operating a Robinson R22 helicopter, as pilot in command, to complete future flight review requirements of Part 61 in the R22. A separate flight review is required for the R-44. Pilots with less experience (i.e. those with less than 200 flight hours in helicopters and at least 50 hours in the model of Robinson helicopters) are required to complete an annual flight review. Similarly, the pilot in command currency requirements of Part 61 must be met in the particular model Robinson helicopter. The purpose of these provisions is to ensure persons operating Robinson R22 and R44 maintain proficiency and competency over time.

Finally, the SFAR establishes criteria for flight instructor who wish to continue to instruct or conduct flight reviews in a Robinson helicopter. These criteria are established to insure that the instructors are knowledgeable and competent to conduct the awareness and flight training. This SFAR requires that each individual who receives awareness training or flight training obtain an endorsement in that individual's logbook from a CFI who has met the criteria.

The FAA has determined that the provisions of this SFAR for requiring student pilots, pilots, and flight instructors to undergo special awareness training, additional recency of experience requirements, and the additional aeronautical flight experience above the current requirements in Part 61 will provide for safe operation of the Robinson R-22 and R-44 helicopters.

The FAA has determined that prompt action regarding these helicopters is necessary, and therefore that notice and comment concerning this rule is not in the public interest. The additional training prescribed in the rule should be taken as rapidly as possible. Nonetheless, the FAA believes that adherence to the Alert and Airworthiness Directives noted above, together with appropriate caution in operating these aircraft, will provide for safe operations for the next 30 days until this SFAR takes effect. No additional extension of this 30 day period is anticipated, however.

Ongoing FAA Actions

The rule expires on December 31, 1997, but may be terminated sooner or extended through the publication of notice, comment and final rule action if circumstances so warrant. This action is one of several on-going actions related to the Robinson helicopters. The FAA

may take additional actions or modify these actions already taken as a result of further study or comments received concerning this rule.

Regulatory Evaluation Summary

Proposed 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 effect or regulatory changes on small entities. Third, the Office of Management of Budget (OMB) directs agencies to assess the effect of regulatory changes on international trade. However, OMB may exempt classes of regulations from the Executive Order's requirements, in addition to those explicitly exempt, such as rules unlikely to involve significant policy issues for which even a brief delay could impose significant costs. In addition, DOT Order 2100.5 "Policies and Procedures for Simplification, Analysis, and Review of Regulations" states that an emergency regulation that otherwise would be nonsignificant is excepted from the requirements for any Evaluation. Thus, because of the emergency nature of this SFAR, the FAA has not prepared a full regulatory evaluation.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily or disproportionately burdened by Federal regulations. The RFA requires a Regulatory Flexibility Analysis if a rule will have a significant economic impact on a substantial number of small entities. FAA Order 2100.14A, Regulatory Flexibility Criteria and Guidance, provides threshold cost and small entity size standards for complying with RFA review requirements in FAA rulemaking actions. Small entities are independently owned and operated small businesses and small not-for-profit organizations. A substantial number of small entities is defined as a number that is 11 or more and which is more than one-third of the small entities subject to this rule. The FAA has determined that this rule will not result in a significant economic impact, either detrimental or beneficial, on a substantial number of small entities, however, the public is invited to comment on this determination particularly with respect to the number

of small entities that will be affected and the cost impact on those small entities.

International Trade Impact Assessment

The FAA has determined that this SFAR will not constitute barriers to international trade, including the export of American goods and services to foreign countries and barriers affecting the import of foreign goods and services into the United States.

Good Cause Justification for Immediate Adoption

Because of the emergency nature of this rulemaking and because of the reasons stated above, the FAA finds that notice and public comment under 5 U.S.C. 553(b) are impracticable and contrary to the public interest.

Paperwork Reduction Act

This SFAR contains no information collection requests requiring approval of the Office of Management and Budget pursuant to the Paperwork Reduction Act (44 U.S.C. 3507 *et seq.*).

Federalism Implications

The SFAR adopted herein will not have substantial direct effects on the states, on the relationship between the Federal government and the states, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12866, it is determined that this SFAR does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

International Civil Aviation Organization (ICAO) and Joint Aviation Regulations

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to comply with ICAO Standards and Recommended Practices to the maximum extent practicable. The FAA has determined that this SFAR does not conflict with any international agreement of the United States.

Conclusion

For the reasons previously discussed in the preamble, the FAA has determined that this SFAR is not significant under Executive Order 12866. The FAA has determined that this regulation is an emergency regulation that must be issued immediately to address an unsafe condition. Based on the findings in the Regulatory Flexibility Determination and the International Trade Impact Analysis, the FAA certifies that this

SFAR will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. This SFAR is not considered significant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979).

List of Subjects in 14 CFR Part 61

Aircraft, Aircraft pilots, Airmen, Airplanes, Air safety, Air transportation, Aviation safety, Balloons, Helicopters, Rotorcraft, Students.

The Rule

In consideration of the foregoing, the Federal Aviation Administration amends part 61 of Title 14 of the Code of Federal Regulations (14 CFR part 61) as follows:

PART 61—CERTIFICATION: PILOTS AND FLIGHT INSTRUCTORS

1. The authority citation for part 61 continues to read as follows:

Authority: 49 U.S.C. app. 1354(a), 1355, 1421, 1422, and 1427; 49 U.S.C. 106(g).

2. By adding Special Federal Aviation Regulation (SFAR) No. 73 to part 61 to read as follows:

Special Federal Aviation Regulations

* * * * *

SFAR No. 73—Robinson R-22/R-44 Special Training and Experience Requirements

1. *Applicability.* Under the procedures prescribed herein, this SFAR applies to all persons who seek to manipulate the controls or act as pilot in command of a Robinson model R-22 or R-44 helicopter. The requirements stated in this SFAR are in addition to the current requirements of part 61.

2. *Required training, aeronautical experience, endorsements, and flight review.*

(a) Awareness Training:

(1) Except as provided in paragraph (a)(2) of this section, no person may manipulate the controls of a Robinson model R-22 or R-44 helicopter after March 27, 1995 for the purpose of flight unless the awareness training specified in paragraph (a)(3) of this section is completed and the person's logbook has been endorsed by a certified flight instructor authorized under paragraph (b)(5) of this section.

(2) A person who holds a rotorcraft category and helicopter class rating on their pilot certificate and meets the experience requirements of paragraph (b)(1) or (b)(2) of this section may not manipulate the controls of a Robinson model R-22 or R-44 helicopter for the purpose of flight after April 26, 1995 unless the awareness training specified in paragraph (a)(3) of this section is completed and the person's logbook has been endorsed by a certified flight instructor authorized under paragraph (b)(5) of this section.

(3) Awareness training must be conducted by a certified flight instructor who has been

endorsed under paragraph (b)(5) of this section and consists of instruction in the following general subject areas:

- (i) energy management;
- (ii) mast bumping;
- (iii) low rotor RPM (blade stall);
- (iv) low G hazards; and
- (v) rotor RPM decay.

(4) A person who can show satisfactory completion of the manufacturer's safety course after January 1, 1994, may obtain an endorsement from an FAA aviation safety inspector in lieu of completing the awareness training required in paragraphs (a)(1) and (a)(2) of this section.

(b) Aeronautical Experience:

(1) No person may act as pilot in command of a Robinson model R-22 unless that person:

(i) has had at least 200 flight hours in helicopters, at least 50 flight hours of which were in the Robinson R-22; or

(ii) has had at least 10 hours dual instruction in the Robinson R-22 and has received an endorsement from a certified flight instructor authorized under paragraph (b)(5) of this section that the individual has been given the training required by this paragraph and is proficient to act as pilot in command of an R-22. Beginning 12 calendar months after the date of the endorsement, the individual may not act as pilot in command unless the individual has completed a flight review in an R-22 within the preceding 12 calendar months and obtained an endorsement for that flight review. The dual instruction must include at least the following abnormal and emergency procedures flight training:

- (A) enhanced training in autorotation procedures,
- (B) engine rotor RPM control without the use of the governor,
- (C) low rotor RPM recognition and recovery, and
- (D) effects of low G maneuvers and proper recovery procedures.

(2) No person may act as pilot in command of a Robinson model R-44 unless that person:

(i) has had at least 200 flight hours in helicopters, at least 50 flight hours of which were in the Robinson R-44; or

(ii) has had at least 10 hours dual instruction in the Robinson R-44 and has received an endorsement from a certified flight instructor authorized under paragraph (b)(5) of this section that the individual has been given the training required by this paragraph and is proficient to act as pilot in command of an R-44. Beginning 12 calendar months after the date of the endorsement, the individual may not act as pilot in command unless the individual has completed a flight review in an R-44 within the preceding 12 calendar months and obtained an endorsement for that flight review. The dual instruction must include at least the following abnormal and emergency procedures flight training:

- (A) enhanced training in autorotation procedures,
- (B) engine rotor RPM control without the use of the governor,
- (C) low rotor RPM recognition and recovery, and
- (D) effects of low G maneuvers and proper recovery procedures.

(3) A person who does not hold a rotorcraft category and helicopter class rating must have had at least 20 hours of dual instruction in a Robinson R-22 helicopter prior to operating it in solo flight. In addition, the person must obtain an endorsement from a certified flight instructor authorized under paragraph (b)(5) of this section that instruction has been given in those maneuvers and procedures, and the instructor has found the applicant proficient to solo a Robinson R-22. This endorsement is valid for a period of 90 days. The dual instruction must include at least the following abnormal and emergency procedures flight training:

- (i) enhanced training in autorotation procedures,
- (ii) engine rotor RPM control without the use of the governor,
- (iii) low rotor RPM recognition and recovery, and
- (iv) effects of low G maneuvers and proper recovery procedures.

(4) A person who does not hold a rotorcraft category and helicopter class rating must have had at least 20 hours of dual instruction in a Robinson R-44 helicopter prior to operating it in solo flight. In addition, the person must obtain an endorsement from a certified flight instructor authorized under paragraph (b)(5) of this section that instruction has been given in those maneuvers and procedures, and the instructor has found the applicant proficient to solo a Robinson R-44. This endorsement is valid for a period of 90 days. The dual instruction must include at least the

following abnormal and emergency procedures flight training:

- (i) enhanced training in autorotation procedures,
 - (ii) engine rotor RPM control without the use of the governor,
 - (iii) low rotor RPM recognition and recovery, and
 - (iv) effects of low G maneuvers and proper recovery procedures.
- (5) No certificated flight instructor may provide instruction or conduct a flight review in a Robinson model R-22 or R-44 unless that instructor:
- (i) Completes the awareness training in paragraph 2(a) of this SFAR,
 - (ii) Meets the experience requirements of paragraphs 2(b)(1)(i) of this SFAR for the R-22, or 2(b)(2)(i) of this SFAR for the R-44,
 - (iii) Has completed flight training in an R-22, R-44, or both, on the following abnormal and emergency procedures:
 - (A) enhanced training in autorotation procedures,
 - (B) engine rotor RPM control without the use of the governor,
 - (C) low rotor RPM recognition and recovery, and
 - (D) effects of low G maneuvers and proper recovery procedures.
 - (iv) Been authorized by endorsement from an FAA aviation safety inspector or authorized designated examiner that the instructor has completed the appropriate training, meets the experience requirements and has satisfactorily demonstrated an ability to provide instruction on the general subject areas of paragraph 2(a)(3) of this SFAR, and

the flight training identified in paragraph 2(b)(5)(iii) of this SFAR.

(c) Flight Review:

(1) No flight review completed to satisfy § 61.56 by an individual after becoming eligible to function as pilot in command in a Robinson R-22 helicopter shall be valid for the operation of R-22 helicopter unless that flight review was taken in an R-22.

(2) No flight review completed to satisfy § 61.56 by individual after becoming eligible to function as pilot in command in a Robinson R-44 helicopter shall be valid for the operation of R-44 helicopter unless that flight review was taken in the R-44.

(3) The flight review will include a review of the awareness training subject areas of paragraph 2(a)(3) of this SFAR and the flight training identified in paragraph 2(b) of this SFAR.

(d) Currency Requirements: No person may act as pilot in command of a Robinson model R-22 or R-44 helicopter carrying passengers unless the pilot in command has met the recency of flight experience requirements of § 61.57 in an R-22 or R-44, as appropriate.

3. *Expiration date.* This SFAR expires December 31, 1997, unless sooner superseded or rescinded.

Issued in Washington, DC, February 23, 1995.

David R. Hinson,

Administrator.

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