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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 95-SW-12-AD; Amendment 39-9165; AD 95-04-13]

Airworthiness Directives; Robinson Helicopter Company Model R44 Helicopters

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to Robinson Helicopter Company Model R44 helicopters, that currently requires revisions to the Limitations section, the Normal Procedures section, and the Emergency Procedures section of the R44 Rotorcraft Flight Manual, revised September 6, 1994. These revisions limit operations in high winds and turbulence; provide information about main rotor (M/R) stalls and mast bumping; and provide recommendations for avoiding these situations. Additionally, emergency procedures are provided for use should certain conditions be encountered. This amendment requires the same revisions required by the existing Priority Letter AD, but revises certain words and phrases to further clarify the revised Limitations and Normal Procedures sections, deletes the paragraph that referenced recording compliance with the AD, and adds another paragraph that states that no special flight permits will be issued prior to compliance with this AD. This amendment is prompted by two Model R44 accidents since April 1994 involving M/R blades contacting the helicopters' fuselage; and, 26 accidents involving M/R blades contacting the fuselage on the Model R22 helicopter since 1981. The Model

R22 helicopter M/R system design is similar to the Model R44 helicopter M/R system design. The actions specified by this AD are intended to prevent M/R stall or mast bumping, which could result in the M/R blades contacting the fuselage causing failure of the M/R system and subsequent loss of control of the helicopter.

DATES: Effective March 17, 1995.

Comments for inclusion in the Rules Docket must be received on or before May 1, 1995.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Office of the Assistant Chief Counsel, Attention: Rules Docket No. 95-SW-12-AD, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

FOR FURTHER INFORMATION CONTACT: Mr. Scott Horn, Aerospace Engineer, FAA, Rotorcraft Directorate, Rotorcraft Standards Staff, Southwest Region, 2601 Meacham Blvd., Fort Worth, Texas 76137, telephone (817) 222-5125, fax (817) 222-5961.

SUPPLEMENTARY INFORMATION: On January 12, 1995, the FAA issued Priority Letter AD 95-02-04, to require revisions to the Limitations section, the Normal Procedures section, and the Emergency Procedures section of the R44 Rotorcraft Flight Manual, revised September 6, 1994. These revisions limit operations in high winds, turbulence, and wind shear conditions; provide information about M/R stalls and mast bumping; and, provide recommendations for avoiding these situations. That action was prompted by two Model R44 accidents since April 1994 involving M/R blades contacting the helicopters' fuselage. M/R stall and mast bumping may have caused these M/R blade contacts with the fuselage. Both of these accidents resulted in fatalities. Limited pilot experience in rotorcraft has been identified as common to these accidents. High winds and turbulence were also noted in both of the accidents. Airspeed and low rotor RPM could also be influencing factors in these M/R blades contacting the fuselage. Flight in strong or gusty winds, areas of wind shear, or areas of moderate, severe, or extreme turbulence can degrade the helicopter handling qualities, thereby creating an unsafe condition. These conditions, if not compensated for, could result in M/R stall or mast bumping, which could

result in the M/R blades contacting the fuselage causing failure of the M/R system and subsequent loss of control of the helicopter.

Since the issuance of that AD, the FAA has determined that the words "areas of forecasted or reported" should be deleted from the revision to the Limitations section of the Model R44 Rotorcraft Flight Manual, revised September 6, 1994. Some operators receive area forecasts and reports that cover wide geographic regions. These forecasts and reports can refer to turbulence in areas unrelated to the actual area of operation. Forecasted or reported wind shear or turbulence outside of the operational area was not intended to be a flight limitation. The word "spreads" was added to the term "wind gusts" to define this limitation as the spread or variance of wind velocities. The phrase "but no lower than 60 knots" was added to the Limitations section because of the possibility that at higher altitudes, 0.7 V_{ne} could be lower than 60 knots. Additionally, the phrase "but no lower than 60 knots" was added to recommendation (1) of the Normal Procedures section because of the possibility that at higher altitudes, 0.9 V_{ne} could be lower than 60 knots. Below 60 knots, the energy required to recover from a low-rotor RPM condition by flaring the helicopter and converting forward airspeed to rotor speed is unavailable. The reference to the requirement to report compliance that was contained in paragraph (b) of the existing Priority Letter AD has been deleted since part 91.147(a)(2)(v) already contains that requirement. Finally, another paragraph has been inserted to state that special flight permits will not be issued to operators for the purpose of obtaining and inserting the three pages into the rotorcraft flight manual. Due to the immediate compliance time and the criticality of preventing M/R blade contacts with the fuselage, this rule is being issued immediately to revise the operating limitation of the helicopter to a safer level.

Since an unsafe condition has been identified that is likely to exist or develop on other Robinson Helicopter Company Model R44 helicopters of the same type design, this AD supersedes Priority Letter AD 95-02-04 to require the same revisions to the Limitations

section, the Normal Procedures section, and the Emergency Procedures section of the R44 Rotorcraft Flight Manual, revised September 6, 1994, that were required by the Priority Letter AD, but deletes the words "areas of forecasted or reported" from the wind turbulence limitation; adds the word "spreads" when referencing wind gusts; adds the phrase "but no lower than 60 knots" to the same section; deletes the reference to the requirement to record compliance that was contained in paragraph (b) of the existing Priority Letter AD; and, adds another paragraph to state that special flight permits will not be issued to accomplish the requirements of this AD.

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

Comments Invited

Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified under the caption ADDRESSES. All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this rule must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to

Docket No. 95-SW-12-AD." The postcard will be date stamped and returned to the commenter.

The regulations adopted herein will 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 final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and that it is not a "significant regulatory action" under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, may be obtained from the Rules Docket at the location provided under the caption ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. App. 1354(a), 1421 and 1423; 49 U.S.C. 106(g); and 14 CFR 11.89.

§ 39.13 [Amended]

2. Section 39.13 is amended by adding a new airworthiness directive (AD), Amendment 39-9165, to read as follows:

95-04-13 Robinson Helicopter Company: Amendment 39-9165. Docket No. 95-SW-12-AD. Supersedes Priority Letter AD 95-02-04, issued January 12, 1995.

Applicability: Model R44 helicopters, certificated in any category.

Compliance: Required before further flight, unless accomplished previously.

To prevent main rotor (M/R) stall or mast bumping, which could result in the M/R blades contacting the fuselage causing failure of the M/R system and subsequent loss of control of the helicopter, accomplish the following:

(a) Insert the following information into the Model R44 Rotorcraft Flight Manual, revised September 6, 1994. Compliance with the Limitations section is mandatory. The Normal Procedures and Emergency Procedures sections are informational.

Limitations Section

(1) Flight when surface winds exceed 25 knots, including gusts, is prohibited.

(2) Flight when surface wind gust spreads exceed 15 knots is prohibited.

(3) Flight in wind shear is prohibited.

(4) Flight in moderate, severe, or extreme turbulence is prohibited.

(5) Adjust forward airspeed to between 60 knots and 0.7 V_{ne} but no lower than 60 knots upon inadvertently encountering moderate, severe, or extreme turbulence.

Note: Moderate turbulence is turbulence that causes: (1) Changes in altitude or attitude; (2) variations in indicated airspeed; and (3) aircraft occupants to feel definite strains against seat belts.

Normal Procedures Section

Note

Until the FAA completes its research into the conditions and aircraft characteristics that lead to main rotor blade/fuselage contact accidents, and corrective type design changes and operating limitations are identified, R44 pilots are strongly urged to become familiar with the following information and comply with these recommended procedures.

Main Rotor Stall: Many factors may contribute to main rotor stall and pilots should be familiar with them. Any flight condition that creates excessive angle of attack on the main rotor blades can produce a stall. Low main rotor RPM, aggressive maneuvering, high collective angle (often the result of high-density altitude, over-pitching [exceeding power available] during climb, or high forward airspeed) and slow response to the low main rotor RPM warning horn and light may result in main rotor stall. The effect of these conditions can be amplified in turbulence. Main rotor stall can ultimately result in contact between the main rotor and airframe. Additional information on main rotor stall is provided in the Robinson Helicopter Company Safety Notices SN-10, SN-15, SN-20, SN-24, SN-27, and SN-29.

Mast Bumping: Mast bumping may occur with a teetering rotor system when excessive main rotor flapping results from low "G" (load factor below 1.0) or abrupt control input. A low "G" flight condition can result from an abrupt cyclic pushover in forward flight. High forward airspeed, turbulence, and excessive sideslip can accentuate the adverse effects of these control movements. The excessive flapping results in the main rotor hub assembly striking the main rotor mast with subsequent main rotor system separation from the helicopter.

To avoid these conditions, pilots are strongly urged to follow these recommendations:

(1) Maintain cruise airspeeds greater than 60 knots indicated airspeed and less than $0.9 V_{ne}$, but no lower than 60 knots.

(2) The possibility of rotor stall is increased at high density altitudes; therefore, avoid flight at high density altitudes.

(3) Use maximum "power-on" RPM at all times during powered flight.

(4) Avoid sideslip during flight. Maintain in-trim flight at all times.

(5) Avoid large, rapid forward cyclic inputs in forward flight, and abrupt control inputs in turbulence.

Emergency Procedures Section

(1) RIGHT ROLL IN LOW "G" CONDITION

Gradually apply aft cyclic to restore positive "G" forces and main rotor thrust. Do not apply lateral cyclic until positive "G" forces have been established.

(2) UNCOMMANDED PITCH, ROLL, OR YAW RESULTING FROM FLIGHT IN TURBULENCE.

Gradually apply controls to maintain rotor RPM, positive "G" forces, and to eliminate sideslip. Minimize cyclic control inputs in turbulence; do not over control.

(3) INADVERTENT ENCOUNTER WITH MODERATE, SEVERE, OR EXTREME TURBULENCE.

If the area of turbulence is isolated, depart the area; otherwise, land the helicopter as soon as practical.

(b) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used when approved by the Manager, Rotorcraft Standards Staff, FAA, Rotorcraft Directorate. Operators shall submit their requests through an FAA Principal Operations Inspector, who may concur or comment and then send it to the Manager, Rotorcraft Standards Staff.

Note: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Rotorcraft Standards Staff.

(c) Special flight permits, pursuant to sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199), will not be issued.

(d) This amendment becomes effective on March 17, 1995.

Issued in Fort Worth, Texas, on February 23, 1995.

Eric Bries,

*Acting Manager, Rotorcraft Directorate,
Aircraft Certification Service.*

[FR Doc. 95-5096 Filed 3-1-95; 8:45 am]

BILLING CODE 4910-13-P

14 CFR Part 39

[Docket No. 95-SW-11-AD; Amendment 39-9166; AD 95-04-14]

Airworthiness Directives; Robinson Helicopter Company Model R22 Helicopters

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to Robinson Helicopter Company Model R22 helicopters, that currently requires revisions to the Limitations section, the Normal Procedures section, and the Emergency Procedures section of the R22 Rotorcraft Flight Manual, revised February 4, 1993. These revisions limit operations in high winds and turbulence; provide information about main rotor (M/R) stalls and mast bumping; and, provide recommendations for avoiding these situations. Additionally, emergency procedures are provided for use should certain conditions be encountered. This amendment requires the same revisions required by the existing Priority Letter AD, but revises certain words and phrases to further clarify the revised Limitations and Normal Procedures sections, deletes the paragraph that referenced recording compliance with the AD, and adds another paragraph that states that no special flight permits will be issued prior to compliance with this AD. This amendment is prompted by 26 accidents since 1981 that resulted in fatalities and involved the M/R blades contacting the helicopters' fuselage. The actions specified by this AD are intended to prevent M/R stall or mast bumping, which could result in the M/R blades contacting the fuselage causing failure of the M/R system and subsequent loss of control of the helicopter.

DATES: Effective March 17, 1995.

Comments for inclusion in the Rules Docket must be received on or before May 1, 1995.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Office of the Assistant Chief Counsel, Attention: Rules Docket No. 95-SW-11-AD, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

FOR FURTHER INFORMATION CONTACT: Mr. Scott Horn, Aerospace Engineer, FAA, Rotorcraft Directorate, Rotorcraft Standards Staff, Southwest Region, 2601 Meacham Blvd., Fort Worth, Texas 76137, telephone (817) 222-5125, fax (817) 222-5961.

SUPPLEMENTARY INFORMATION: On January 12, 1995, the FAA issued Priority Letter AD 95-02-03, to require revisions to the Limitations section, the Normal Procedures section, and the Emergency Procedures section of the R22 Rotorcraft Flight Manual, revised February 4, 1993. These revisions limit operations in high winds, turbulence,

and wind shear conditions; provide information about M/R stalls and mast bumping; and, provide recommendations for avoiding these situations. That action was prompted by 26 Model R22 accidents since 1981 involving M/R blades contacting the helicopters' fuselage. M/R stall and mast bumping may have caused these M/R blade contacts with the fuselage. All of these accidents resulted in fatalities. Limited pilot experience in rotorcraft has been identified as common to these accidents. High winds and turbulence were also noted in some of the accidents. Airspeed and low rotor RPM could also be influencing factors in these M/R blades contacting the fuselage. Flight in strong or gusty winds, areas of wind shear, or areas of moderate, severe, or extreme turbulence can degrade the helicopter handling qualities, thereby creating an unsafe condition. These conditions, if not compensated for, could result in M/R stall or mast bumping, which could result in the M/R blades contacting the fuselage causing failure of the M/R system and subsequent loss of control of the helicopter.

Since the issuance of that AD, the FAA has determined that the words "areas of forecasted or reported" should be deleted from the revision to the Limitations section of the Model R22 Rotorcraft Flight Manual, revised February 4, 1993. Some operators receive area forecasts and reports that cover wide geographic regions. These forecasts and reports can refer to turbulence in areas unrelated to the actual area of operation. Forecasted or reported wind shear or turbulence outside of the operational area was not intended to be a flight limitation. The word "spreads" was added to the term "wind gusts" to define this limitation as the spread or variance of wind velocities. The phrase "but no lower than 60 knots" was added to the Limitations section because of the possibility that at higher altitudes, $0.7 V_{ne}$ could be lower than 60 knots. Additionally, the phrase "but no lower than 60 knots" was added to recommendation (1) of the Normal Procedures section because of the possibility that at higher altitudes, $0.9 V_{ne}$ could be lower than 60 knots. Below 60 knots, the energy required to recover from a low-rotor RPM condition by flaring the helicopter and converting forward airspeed to rotor speed is unavailable. The reference to the requirement to record compliance that was contained in paragraph (b) of the existing Priority Letter AD has been deleted since part 91.417(a)(2)(v)