



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 27

[Docket No. FAA-2026-1585; Notice No. XX-XX-XX-SC]

Special Conditions: Skyrise, Robinson Helicopter Company Model R66 Helicopter; Control Margin Awareness

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for the Robinson Helicopter Company (Robinson) Model R66 helicopter. This helicopter, as modified by Skyrise, will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for normal category helicopters. This design feature replaces the mechanical flight controls with a digital fly-by-wire FBW system. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These proposed special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: Send comments on or before [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Send comments identified by Docket No. FAA-2026-1585 using any of the following methods:

Federal eRegulations Portal: Go to www.regulations.gov and follow the online instructions for sending your comments electronically.

Mail: Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE, Room W12-140, West Building Ground Floor, Washington, DC, 20590-0001.

Hand Delivery or Courier: Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Fax: Fax comments to Docket Operations at 202-493-2251.

Docket: Background documents or comments received may be read at www.regulations.gov at any time. Follow the online instructions for accessing the docket or go to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Johannes vanHoudt, Product Policy Management, AIR-62B, Technical Policy Branch, Policy and Standards Division, Aircraft Certification Service, Federal Aviation Administration, 901 Locus St, Kansas City, MO 64106; telephone (819) 329-4144; e-mail john.g.van.houdt@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the proposed special conditions, explain the reason for any recommended change, and include supporting data.

The FAA will consider all comments received by the closing date for comments, and will consider comments filed late if it is possible to do so without incurring delay. The FAA may change these special conditions based on the comments received.

Privacy

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in title 14, Code of Federal Regulations

(14 CFR) 11.35, the FAA will post all comments received without change to www.regulations.gov, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about these special conditions.

Confidential Business Information

Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to these special conditions contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to these special conditions, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and the indicated comments will not be placed in the public docket of these proposed special conditions. Send submissions containing CBI to the individual listed in the For Further Information Contact section above. Comments the FAA receives, which are not specifically designated as CBI, will be placed in the public docket for these proposed special conditions.

Background

On April 10, 2023, Skyrise applied for a supplemental type certificate (STC) for installing its SkyOS fly-by-wire (FBW) flight control system (FCS) in the Robinson Model R66 helicopter. The Robinson Model R66 helicopter, currently approved under Type Certificate No. R00015LA, is a single-engine, normal category rotorcraft with a maximum takeoff weight of 2,700 pounds and a maximum seating capacity of five passengers.

The current 14 CFR part 27 regulations do not contain adequate standards for FBW FCS with respect to control margin awareness. The airworthiness standards for controllability and maneuverability of the rotorcraft are contained in § 27.143. These controllability requirements are compatible with most FBW systems, while most of the maneuverability requirements are not affected by FBW systems, except for the control margins. One of the purposes of the rule is to ensure that control margins (at the rotor and the anti-torque system level) are sufficient in the defined flight envelope to avoid loss of control (that is, the rotorcraft has adequate control power for the pilot to exit potentially hazardous flight conditions). Implicit in this purpose is that the pilot is provided with sufficient awareness of proximity to control limits. Because § 27.143 was written to address hydro-mechanical flight control systems, through which pilot awareness of control margins is provided by cyclic and pedal position relative to cockpit control stops, the rule is inadequate for certification of a FBW FCS, where there is no mechanical link between the inceptor and the receptor. Without a constant correlation between cockpit control and main or tail rotor actuator positions, the FCS may not provide tactile control margin feedback to the pilot through cockpit control position relative to the control position physical stop or limit, for all flight conditions. The special conditions will require the minimum safety standard to ensure awareness of proximity to control limits at the main rotor and tail rotor is provided to pilots of the helicopter..

Type Certification Basis

Under the provisions of 14 CFR 21.101, Skyryse must show that the Robinson Model R66 helicopter, as changed, continues to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. R00015LA or the applicable regulations in effect on the date of application for the change.

If the Administrator finds that the applicable airworthiness regulations (e.g., 14 CFR part 27) do not contain adequate or appropriate safety standards for the Robinson

Model R66 helicopter because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the applicant apply for an STC to modify any other model included on the same type certificate to incorporate the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Robinson Model R66 helicopter must comply with the fuel-vent and exhaust-emission requirements of 14 CFR part 34, and the noise-certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with title 14, Code of Federal Regulations (14 CFR) § 11.38, and they become part of the type certification basis under § 21.101.

Novel or Unusual Design Features

The Robinson Model R66 helicopter will incorporate the following novel or unusual design feature:

A primary FCS that replaces the primary mechanical flight controls with a fully authority digital FBW system. The flight control inputs from this FBW system will replace the tactical feedback from pushrods with a position calculated by a computer.

Discussion

These special conditions require the minimum safety standard to ensure awareness of proximity to control limits at the main rotor and tail rotor is provided to pilots of the Robinson Model R66 helicopter. The system design must provide the pilot with sufficient awareness of proximity to control limits, traditionally achieved through conventional flight controls by the pilot's inherent awareness of cyclic stick and pedal position relative to control stops.

Applicability

As discussed above, these proposed special conditions are applicable to the model for which they are issued. Should the applicant apply for an STC to modify any other model included on the same type certificate to incorporate the same novel or unusual design features, these special conditions would apply to the other model as well.

Conclusion

This action affects only certain novel or unusual design features on one model of helicopter. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of these features on the helicopter.

List of Subjects in 14 CFR Part 27

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

Authority Citation

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(f), 40113, 44701, 44702, and 44704.

The Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for Robinson Helicopter Company Model R66 helicopters, as modified by Skyryse.

In addition to the existing §27.143 requirements, the following special condition applies: The system design must ensure that the flight crew is made suitably aware whenever the means of primary flight control approaches the limits of control authority. For the context of this special condition, the term “suitable” indicates an appropriate balance between nuisance and necessary operation.

Issued in Fort Worth, Texas, on August 26, 2026.

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