

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

Michael Gordon Whitaker,  
Administrator.

[FR Doc. 2024-18545 Filed 8-21-24; 8:45 am]

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 29

[Docket No. FAA-2024-0895; Special Conditions No. 29-057-SC]

#### Special Conditions: Bell Textron Inc. (Bell) Model 525 Helicopter; Static Longitudinal Stability Compliance

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final special conditions.

**SUMMARY:** These special conditions are issued for the Bell Model 525 helicopter. This helicopter will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport category helicopters. This design feature is a four-axis full authority digital fly-by-wire (FBW) flight control system (FCS) that provides for aircraft control through pilot input or coupled auto pilot modes. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These 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:** Effective August 22, 2024.

**FOR FURTHER INFORMATION CONTACT:** Gregory Thumann, Performance and Environment Unit, AIR-621A, Technical Policy Branch, Policy and Standards Division, Aircraft Certification Service, Federal Aviation Administration, 1801 S Airport Road, Wichita, KS 67209; telephone and fax (405) 666-1052; email [Gregory.G.Thumann@faa.gov](mailto:Gregory.G.Thumann@faa.gov).

#### SUPPLEMENTARY INFORMATION:

##### Background

On December 15, 2011, Bell applied for a type certificate for a new 14 CFR part 29 transport category helicopter designated as the Model 525. Bell applied for multiple extensions to its certification application, with the most recent occurring on September 21, 2023. The helicopter is a medium twin-engine

rotorcraft. The maximum takeoff weight is 20,500 pounds, with a maximum capacity of 16 passengers and a crew of 2.

##### Type Certification Basis

Under the provisions of 14 CFR 21.17, Bell must show that the Model 525 meets the applicable provisions of part 29, as amended by Amendments 29-1 through 29-55 thereto. The Bell Model 525 certification basis date is December 31, 2019.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, 14 CFR part 29) do not contain adequate or appropriate safety standards for the Bell Model 525 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 type certificate for that model be amended later to include any other model that incorporates 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 Bell Model 525 helicopter must comply with the 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 § 11.38, and they become part of the type-certification basis under § 21.17(a)(2).

##### Novel or Unusual Design Feature

The Bell Model 525 helicopter will incorporate the following novel or unusual design feature: a four-axis full authority digital FBW FCS that provides aircraft control through pilot input or coupled auto pilot modes in addition to degraded modes.

##### Discussion

For a conventional rotorcraft having mechanical linkages from the primary cockpit flight controls to the rotor, static longitudinal stability means that a pull force on the controller (*i.e.*, cyclic) will result in a reduction in speed relative to the trim speed, and a push force will result in a higher speed relative to the trim speed. Longitudinal stability is required by the regulations for the following reasons:

- Airspeed change cues are provided to the pilot through increased and decreased forces on the controller.
- Short periods of unattended control of the rotorcraft do not result in

significant changes in attitude, airspeed, or load factor.

- A predictable pitch response is provided to the pilot.
- An acceptable level of pilot workload, to attain and maintain trim speed and altitude, is provided to the pilot.
- Longitudinal stability provides gust stability.

The pitch control movement of the controller (*i.e.*, cyclic) for the FBW FCS is an attitude command, which results in a rotor movement to attain the commanded pitch attitude. The flight path commanded by the initial cyclic input will remain stick-free until the pilot gives another command. This control function is applied during normal control laws within the approved flight envelope. The relevant regulations in part 29, which are §§ 29.173(b), 29.175 for visual flight rules (VFR) operations, and Appendix B to part 29 sections IV and VII—Airworthiness Criteria for Helicopter Instrument Flight, are inadequate for the Bell 525 because the longitudinal flight control laws for the Bell 525 provide neutral and negative static stability, rather than positive static stability, within the normal operational envelope. As detailed in § 29.173(b) and considered in Advisory Circular (AC) 29.173A, “Static Longitudinal Stability” (AC 29.173A), which is contained in AC 29-2C, “Certification of Transport Category Rotorcraft” (AC 29-2C), and the positive control force stability requirements in Appendix B to part 29, sections IV and VII, the slope of the control position (*i.e.*, cyclic) versus airspeed curve must be positive (*i.e.*, provide positive static stability) throughout the full range of altitude for which certification is requested and with the throttle and collective pitch held constant.

The 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.

In lieu of meeting the requirements of §§ 29.173(b), 29.175 for VFR operations and the airworthiness criteria for helicopter instrument flight requirements of Appendix B to part 29, sections IV and VII, the special conditions require the rotorcraft to be shown to have suitable longitudinal stability and acceptable rotorcraft handling qualities. The suitable static longitudinal stability must be primarily based on a positive control movement, which is described as “control sense of motion” in AC 29.173A contained in AC 29-2C. Additionally, the static

longitudinal stability and rotorcraft handling qualities are determined through an assessment of pilot workload, cues, and pilot compensation for specific test procedures performed during the flight test evaluation.

The language “must be primarily based on a positive control movement” reflects a pilot’s perception of aircraft control where the first concern is that the control movements are primarily positive in control movement. Once that is established, the pilot must observe that the second concern of “rotorcraft handling qualities” is not degraded or mis-aligned where the anticipated flight behavior is not what the pilot is witnessing. The special conditions address the concern that these highly computer-controlled control systems can cause the pilot to become disconnected or out-of-sync with the aircraft’s control. Such a situation can lead to control input errors and undesirable feedback that can in turn result in loss of control.

#### Discussion of Comments

The FAA issued Notice of Proposed Special Conditions No. 29–24–01–SC for the Bell Model 525 helicopter, which was published in the **Federal Register** on May 22, 2024 (89 FR 44928). The FAA received one response from the applicant, Bell.

Bell observed that the language in proposed special conditions No. 29–24–01–SC could be interpreted as negating the entirety of section VII of appendix B to part 29, which is not the FAA’s intent. Bell recommended clarifying the reference to specify section VII(a)(2)(iv) of appendix B to part 29 and adding an additional descriptive phrase in order to avoid an implied exclusion of the remaining applicable parts of section VII. The FAA concurs with Bell’s request and accepts the suggested language as proposed by Bell with minor edits for appropriate presentation.

Except as discussed above, the special conditions are adopted as proposed.

#### Applicability

As discussed above, these special conditions are applicable to the Bell Model Bell 525 helicopter. Should Bell apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, these special conditions would apply to that model as well.

Under standard practice, the effective date of final special conditions would be 30 days after the date of publication in the **Federal Register**. However, as the certification date for the Bell Model 525

is imminent, the FAA finds that good cause exists to make these special conditions effective upon publication.

#### Conclusion

This action affects only a certain novel or unusual design feature on one model of helicopter. It is not a rule of general applicability.

#### List of Subjects in 14 CFR Part 25

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), 106(g), 40113, 44701, 44702, 44704.

#### The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for the Bell Textron Inc. (Bell) Model 525 helicopter.

In lieu of meeting the requirements of §§ 29.173(b), 29.175 for VFR operations and the airworthiness criteria for helicopter instrument flight requirements of Appendix B to part 29, sections IV and VII(a)(2)(iv), as relating to the aircraft’s static longitudinal stability requirements, the Federal Aviation Administration (FAA) establishes the following special conditions as part of the type certification basis for Bell Model 525 helicopters.

The rotorcraft must be shown to have suitable longitudinal stability in any condition normally encountered in service, including the effects of atmospheric disturbance. The showing of suitable static longitudinal stability must be primarily based on a positive control movement in addition to acceptable rotorcraft handling qualities, both of which are determined by assessing pilot workload, cues, and pilot compensation for specific test procedures during the flight test evaluation.

Issued in Kansas City, Missouri, on August 14, 2024.

**Patrick R. Mullen,**

*Manager, Technical Policy Branch, Policy and Standards Division, Aircraft Certification Service.*

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 71

[Docket No. FAA–2024–1265; Airspace Docket No. 24–ANM–85]

RIN 2120–AA66

#### Establishment of Class E Airspace; White Sulphur Springs Airport, White Sulphur Springs, MT

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** This action establishes Class E airspace extending upward from 700 feet above the surface at White Sulphur Springs Airport, White Sulphur Springs, MT, to support the airport’s transition from visual flight rules (VFR) operations to instrument flight rules (IFR) operations.

**DATES:** Effective date 0901 UTC, October 31, 2024. The Director of the Federal Register approves this incorporation by reference action under 1 CFR part 51, subject to the annual revision of FAA Order JO 7400.11 and publication of conforming amendments.

**ADDRESSES:** A copy of the Notice of Proposed Rulemaking (NPRM), all comments received, this final rule, and all background material may be viewed online at [www.regulations.gov](http://www.regulations.gov) using the FAA Docket number. Electronic retrieval help and guidelines are available on the website. It is available 24 hours each day, 365 days each year.

FAA Order JO 7400.11H, Airspace Designations and Reporting Points, and subsequent amendments can be viewed online at [www.faa.gov/air\\_traffic/publications/](http://www.faa.gov/air_traffic/publications/). You may also contact the Rules and Regulations Group, Office of Policy, Federal Aviation Administration, 800 Independence Avenue SW, Washington, DC 20591; telephone: (202) 267–8783.

**FOR FURTHER INFORMATION CONTACT:** Nathan A. Chaffman, Federal Aviation Administration, Western Service Center, Operations Support Group, 2200 S 216th Street, Des Moines, WA 98198; telephone (206) 231–3460.

#### SUPPLEMENTARY INFORMATION:

##### Authority for This Rulemaking

The FAA’s authority to issue rules regarding 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