List of Subjects in 10 CFR Part 430

Administrative practice and procedure, Confidential business information, Energy conservation, Household appliances, Imports, Incorporation by reference, Intergovernmental relations, Small businesses.

Signing Authority

This document of the Department of Energy was signed on January 11, 2022, by Kelly J. Speakes-Backman, Principal Deputy Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the **Federal Register**.

Signed in Washington, DC, on January 12, 2022.

Treena V. Garrett,

Federal Register Liaison Officer, U.S. Department of Energy.

For the reasons set forth in the preamble, DOE amends part 430 of chapter II, subchapter D, of title 10 of the Code of Federal Regulations, to read as set forth below:

PART 430—ENERGY CONSERVATION PROGRAM FOR CONSUMER PRODUCTS

■ 1. The authority citation for part 430 continues as follows:

Authority: 42 U.S.C. 6291–6309; 28 U.S.C. 2461 note.

■ 2. Section 430.32 is amended by:
■ a. Removing paragraph (f)(1)(iii); and
■ b. Revising paragraphs (g)(4) and (h)(3).

The revisions read as follows:

§ 430.32 Energy and water conservation standards and their compliance dates.

* * * * *

(g) * * *

(4) Clothes washers manufactured on or after January 1, 2018, shall have an Integrated Modified Energy Factor no less than, and an Integrated Water Factor no greater than:

Product class	Integrated modified energy factor (cu.ft./kWh/cycle)	Integrated water factor (gal/cycle/cu.ft.)
(i) Top-loading, Compact (less than 1.6 ft^3 capacity)	1.15	12.0
(ii) Top-loading, Standard (1.6 ft^3 or greater capacity)	1.57	6.5
(iii) Front-loading, Compact (less than 1.6 ft^3 capacity)	1.13	8.3
(iv) Front-loading, Standard (1.6 ft^3 or greater capacity)	1.84	4.7

(h) * * *

(3) Clothes dryers manufactured on or after January 1, 2015, shall have a combined energy factor no less than:

Product class	Combined energy factor (lbs/kWh)
(i) Vented Electric, Standard (4.4 ft^3 or greater capacity)	3.73
(ii) Vented Electric, Compact (120V) (less than 4.4 ft^3 capacity)	3.61
(iii) Vented Electric, Compact (240V) (less than 4.4 ft^3 capacity)	3.27
(iv) Vented Gas	3.30
(v) Ventless Electric, Compact (240V) (less than 4.4 ft^3 capacity)	2.55
(vi) Ventless Electric, Combination Washer-Dryer	2.08

* * * * *

[FR Doc. 2022–00833 Filed 1–18–22; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 29

[Docket No. FAA–2021–0065; Special Conditions No. 29–054–SC]

Special Conditions: Bell Textron Inc. Model 525 Helicopter; Fly-By-Wire Flight Control System

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for the Bell Textron Inc. (Bell) Model 525 helicopter. This helicopter will have a novel or unusual design feature associated with a fly-by-wire (FBW) flight control system (FCS). 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 February 18, 2022.

FOR FURTHER INFORMATION CONTACT: John VanHoudt, FAA, Dynamic Systems Section, AIR–627, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service, 10101 Hillwood Parkway, Fort Worth, TX 76177–1524; telephone and fax 817–222–5193; email *John.G.Van.Houdt@FAA.Gov*.

SUPPLEMENTARY INFORMATION:

Background

On December 15, 2011, Bell applied for a type certificate for a new transport category helicopter, designated as the Model 525, under Title 14, Code of Federal Regulations (CFR) part 29. Bell applied for multiple extensions, with the most recent occurring on November 12, 2020. The date of the updated type certification basis is December 31, 2016, based upon the applicant's proposed type certificate issuance date of December 31, 2021. The Model 525 is a

medium twin-engine rotorcraft. The design maximum takeoff weight is 20,500 pounds, with a maximum capacity of 19 passengers and a crew of two.

The Bell Model 525 helicopter will be equipped with a four axis full authority digital FBW FCS that provides for aircraft control through pilot input and coupled flight director modes. The design of the Bell Model 525 FBW controls, which provides no direct hydro-mechanical linkage between the primary cockpit flight controls or inceptors and the main and tail rotor actuators, is a first for commercial rotorcraft use. Therefore, the regulations do not contain adequate or appropriate safety standards for this new design feature.

The rotorcraft industry is producing new generations of helicopters, and gradually increasing size, speed, load capacity, and technical sophistication. In recent years, an accelerated trend has occurred using rotorcraft for a wide range of commercial and industrial applications. This has resulted in increased complexity of modern control systems and increased use of automation in flight control systems, including the implementation of advanced flight control systems such as FBW FCS.

Section 29.671(c), which provides requirements for transport category rotorcraft control systems, does not contain adequate or appropriate safety standards for this new design feature. Section 29.671(c) requires, in part, a means to allow the pilot to determine that full control authority is available prior to flight. This command control authority is typically achieved by verifying movement of the control quadrant through an unassisted mechanical pilot-initiated manipulation of the primary flight controls prior to flight. Although this approach does not guarantee that 100% maximum control movement of the flight controls has been achieved prior to flight, it has been deemed appropriate for mechanical flight control systems.

Unlike traditional mechanical flight control systems, the FBW FCS reduces the opportunity for jamming of the flight controls due to mechanical bind, improper servo adjustment resulting from faulty maintenance, or presence of a foreign object in the control mechanism that will impair safety. This reduced exposure for jams is due to the replacement of the mechanical linkages between the primary cockpit flight controls or inceptors and the main and tail rotor actuators with digital signal processing wiring. However, the FBW FCS does increase the potential for latent failures or faults that could impair full control authority, unless a means exists to ensure the FBW FCS is fully functional and free of control authority impairment prior to flight. A FBW system may have the ability to verify full control authority without having to move the primary flight controls.

Although part 29 does not contain adequate or appropriate safety standards for this novel or unusual design feature, 14 CFR 25.671, amendment 25–23, provides these requirements for transport category airplanes. Accordingly, these special conditions are based on § 25.671 to provide requirements for a FBW FCS on the Bell Model 525 helicopter. Section 25.671(c) provides the same level of safety as intended by § 29.671(c) when employing a FBW FCS by including requirements for jamming and failure analysis. These special conditions require a comprehensive safety analysis of the aircraft's FBW FCS to include failures due to command logic (software), mechanical and electronic interfaces to other systems, jamming, and maintenance. Therefore, in conjunction with § 29.671(a) and (b), these special conditions incorporate provisions from § 25.671(c) to establish a level of safety equivalent to that established in the regulations.

Type Certification Basis

Under the provisions of 14 CFR 21.17, Bell must show that the Model 525 helicopter meets the applicable provisions of part 29, as amended by Amendments 29 through 55 thereto. The Bell Model 525 certification basis date is December 31, 2016.

If the Administrator finds that the applicable airworthiness regulations (*i.e.,* 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 or similar novel or unusual design feature, the 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 noise certification requirements of 14 CFR part 36, and the FAA must issue a finding of regulatory adequacy under § 611 of Public Law 92–574, the ''Noise Control Act of 1972.''

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 Features

The Bell Model 525 helicopter will incorporate the following novel or unusual design features: A FBW FCS.

This new design feature has no direct hydro-mechanical linkage between the primary cockpit flight controls or inceptors and the main and tail rotor actuators, thereby eliminating the more complex elements of either a manual movement of the controls by the pilot, or another manual means.

Discussion

These special conditions require that a means be available to show full control authority for all powered control systems.

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.

Discussion of Comments

The FAA issued Notice of Proposed Special Conditions No. 29–054–SC for the Bell Model 525 helicopter, which published in the **Federal Register** on January 29, 2021 (86 FR 7516). The FAA received one response, from the European Union Aviation Safety Agency (EASA).

The FAA proposed the special conditions, which are based on current § 25.671(c), in lieu of § 29.671(c). EASA requested the FAA explain its rationale for replacing § 29.671(c), which requires a means to allow either full movement of all primary flight controls or a determination by the pilot that full control authority is available prior to flight. EASA stated that although FBW reduces the risk of jamming, it does not alleviate the need to allow checking the full control movement prior to flight and thus a pre-flight check is still necessary.

The FAA is not replacing the requirement for a pre-flight check. Instead, these special conditions include a requirement for a comprehensive safety analysis to ensure the FBW FCS is fully functional and free of control authority impairment prior to flight. The comprehensive safety analysis should address failures due to command logic (software), mechanical and electronic interfaces to other systems, jamming, and maintenance. The safety analysis should also identify the existence of any latent faults.

Therefore, the means to ensure the FBW FCS is fully functional and free of control authority impairment prior to flight is based on the results of the comprehensive safety analysis. The means to ensure the safety objective of the special conditions is met may consist of design, analysis, test, built in test, and limited pre-flight checks.

EASA noted the proposed special conditions, although derived from § 25.671(c), are not aligned with EASA's latest Certification Specifications (CS) 25.671 (Amendment 24).

Under § 21.16, special conditions prescribed by the FAA must establish a level of safety equivalent to that established in the FAA's existing regulations. Accordingly, the FAA based these special conditions on 14 CFR 25.671(c) and not on EASA's certification specifications.

EASA requested the FAA clarify its use of the term ''continued safe flight and landing'' used in the proposed special conditions. EASA stated the term has a specific definition for flight control failures on large airplanes and asked whether the FAA will use a consistent definition for failure conditions under § 29.1309. EASA also asked whether the FAA will provide a definition of ''continued safe flight and landing'' in the context of flight control failures.

Advisory Circular 29–2C, *Certification of Transport Category Rotorcraft* (AC 29–2C), contains a definition for ''continued safe flight and landing.'' The FAA plans to use this definition for the purposes of these special conditions.

EASA stated the proposed special conditions introduce the term ''normal flight envelope,'' which is not present in EASA's CS 29 regulation. EASA questioned whether it is relevant only to the Bell Model 525 and whether it means the same as ''operating'' envelope.

When § 25.671 was incorporated, the ''normal flight envelope'' was the aircraft approved operating limitations contained in the aircraft flight manual. This proposed special condition has the same intent. In order to provide clarity and consistency in the language between this special condition and § 29.672, the wording will be revised to approved operating limitations.

EASA asked what the FAA means by the proposed requirement that ''probable failures have only minor effects.'' Specifically, EASA asked whether a probable failure is greater than $1E^{-5}$ per flight hour and whether ''no safety effect'' would be a noncompliance.

In AC 29–2C, the upper part of the range previously applied to the term ''probable'' has been redefined as ''reasonably probable.'' Accordingly, the FAA has revised these special conditions by replacing ''probable'' with ''reasonably probable.'' As provided in AC 29–2C, reasonably probable events are based on a probability on the order of between 10^{-3} to 10^{-5}. If a failure is classified as ''no safety effect,'' then no further showing of compliance would be required.

EASA requested the FAA change the language in paragraphs (1) and (2) of the proposed special conditions to reference failures as defined in § 29.671(c)(3). EASA states its suggested language will avoid a gap between EASA CS 29.671(c)(1) and 29.671(c)(3).

The FAA agrees and made the suggested change in the special conditions.

EASA stated that if the FAA's special conditions have a no single failure criterion under § 29.1309, then jams under § 29.671(c)(3) may need to be excluded. EASA referenced CS 25.1309 (Amendment 24) for no single failure.

EASA is correct; there is no criteria for single failure in § 29.1309. As such, the FAA has removed the ''single'' descriptor from the special conditions language to be consistent with § 29.1309 safety objectives. The FAA does not agree that jams under § 29.671(c)(3) need to be excluded. Any failure condition that can be shown to be extremely improbable isn't limited by failures that occur from a single source.

EASA stated that using language from § 25.671(c), which is applicable to transport category airplanes, is overly ambitious for rotorcraft. EASA asked several hypothetical questions concerning how an applicant would show compliance and requested the FAA provide further guidance.

Section 29.671(c), which these special conditions replace as a certification requirement for the Model 525, requires either a means to allow full control movement of the primary flight controls prior to flight or a means that will allow the pilot to determine that full control authority is available prior to flight. The language utilized from § 25.671(c) for these special conditions ensures verification of the control authority prior to flight via a comprehensive safety analysis. This analysis is necessary to address failures that could not be detected by full control movement of the digital primary flight controls.

EASA requested the FAA clarify whether § 29.691 is sufficient for an FBW system or whether specific guidance is needed for FBW flight controls after a power failure at entry into and during autorotation.

The requirements in § 29.691, and the accompanying guidance in AC 29–2C, are sufficient for an FBW system. Section 29.691 requires that the flight control design allow rapid entry into autorotation after a power failure. AC 29–2C provides that applicants may comply with this rule through an evaluation as part of the Type Inspection Authorization test program.

EASA requested the FAA clarify the meaning of ''normally encountered'' in paragraph (3) of the proposed special conditions. Specifically, EASA asked whether there are jams that are not considered normal and are therefore excluded from the assessment. EASA further noted that the flight conditions listed in paragraph (3) of the proposed special conditions are contrary to the maneuvers required by §§ 29.141 and 29.143.

The FAA intended these special conditions to address jams encountered during any flight condition including transitions between flight conditions. The FAA has revised paragraph (3) accordingly.

EASA requested the FAA clarify the relationship between the proposed special conditions and § 29.685(a), which addresses flight control jamming. EASA noted the approach in § 29.685(a) is different from the one proposed in the special conditions, as § 29.685(a) requires the design of the control system to prevent jamming. EASA states the proposed special conditions would not provide credit for jamming that may result in a condition where continued safe flight is guaranteed.

Section 29.685(a) contains a design requirement for mechanical controls and is limited in scope. These special conditions are broader and include FBW primary flight controls that did not exist when § 29.685 was promulgated in 1964. Regarding EASA's statement about credit, paragraph (3) of these special conditions require reducing jamming in any phase of flight to a level capable of continued safe flight and landing.

Applicability

These special conditions are applicable to the Bell Model 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.

Conclusion

This action affects only a certain novel or unusual design feature on the Bell Model 525 helicopter. It is not a rule of general applicability.

List of Subjects in 14 CFR Part 29

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. Model 525 helicopter. Unless otherwise stated, the following special conditions will be used in lieu of § 29.671(c).

The rotorcraft must be shown by analysis and tests, to be capable of continued safe flight and landing after any of the following failures or jamming in the flight control system for any speed or altitude within the approved operating limitations, without requiring exceptional piloting skill or strength. Reasonably probable failures must have only minor effects.

(1) Any failure, excluding a jam as listed in paragraph (3).

(2) Any combination of failures not shown to be extremely improbable, excluding a jam as listed in paragraph (3).

(3) Any jam in a control position encountered during any flight condition, including transitions, within the approved operating limitations, unless the jam is shown to be extremely improbable, or can be alleviated.

Issued in Kansas City, Missouri, on January 12, 2022.

Patrick Mullen,

Manager, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service.

[FR Doc. 2022–00862 Filed 1–18–22; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2022–0004; Project Identifier AD–2022–00036–T; Amendment 39–21913; AD 2022–02–16]

RIN 2120–AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for all The Boeing Company Model 787–8, 787–9, and 787–10 airplanes. This AD was prompted by a determination that radio altimeters cannot be relied upon to perform their intended function if they experience interference from wireless broadband operations in the 3.7–3.98 GHz frequency band (5G C-Band), and a recent determination that, during landings, as a result of this interference, certain airplane systems may not properly transition from AIR to GROUND mode when landing on certain runways, resulting in degraded deceleration performance and longer landing distance than normal due to the effect on thrust reverser deployment, speedbrake deployment, and increased idle thrust. This AD requires revising the limitations and operating procedures sections of the existing airplane flight manual (AFM) to incorporate limitations prohibiting certain landings and the use of certain minimum equipment list (MEL) items, and to incorporate operating procedures for calculating landing distances, when in the presence of 5G C-Band interference as identified by Notices to Air Missions (NOTAMs). The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective January 19, 2022.

The FAA must receive comments on this AD by March 7, 2022.

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- *Federal eRulemaking Portal:* Go to *https://www.regulations.gov.* Follow the instructions for submitting comments.
- *Fax:* 202–493–2251.
- *Mail:* U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- *Hand Delivery:* Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Examining the AD Docket

You may examine the AD docket at *https://www.regulations.gov* by searching for and locating Docket No. FAA–2022–0004; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The street address for the Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Dean Thompson, Senior Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206–231–3165; email: *dean.r.thompson@faa.gov.*

SUPPLEMENTARY INFORMATION:

Background

In March 2020, the United States Federal Communications Commission (FCC) adopted final rules authorizing flexible use of the 3.7–3.98 GHz band for next generation services, including 5G and other advanced spectrum-based services.[1] Pursuant to these rules, C-Band wireless broadband deployment is permitted to occur in phases with the opportunity for operations in the lower 0.1 GHz of the band (3.7–3.8 GHz) in certain markets as early as January 19, 2022. This AD refers to ''5G C-Band'' interference, but wireless broadband technologies, other than 5G, may use the same frequency band.[2] These other uses of the same frequency band are within the scope of this AD since they would introduce the same risk of radio altimeter interference as 5G C-Band.

The radio altimeter is an important aircraft instrument, and its intended function is to provide direct height-above-terrain/water information to a variety of aircraft systems. Commercial aviation radio altimeters operate in the 4.2–4.4 GHz band, which is separated by 0.22 GHz from the C-Band telecommunication systems in the 3.7–3.98 GHz band. The radio altimeter is more precise than a barometric altimeter and for that reason is used where aircraft height over the ground needs to be precisely measured, such as autoland, manual landings, or other low altitude operations. The receiver on the radio altimeter is typically highly accurate, however it may deliver erroneous results in the presence of out-of-band radio frequency emissions from other frequency bands. The radio altimeter must detect faint signals reflected off the ground to measure altitude, in a manner similar to radar. Out-of-band signals could significantly degrade radio altimeter functions during critical phases of flight, if the altimeter is unable to sufficiently reject those signals.

[1] The FCC's rules did not make C-Band wireless broadband available in Alaska, Hawaii, and the U.S. Territories.

[2] The regulatory text of the AD uses the term ''5G C-Band'' which, for purposes of this AD, has the same meaning as ''5G'', ''C-Band'' and ''3.7–3.98 GHz.''