Proposed Rules

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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 27

[Docket No. FAA–2017–1130; Notice No. 27–043–SC]

Special Conditions: Airbus Helicopters Model AS350B2 and AS350B3 Helicopters; Installation of Garmin International, Inc., Autopilot System

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: We propose special conditions for Airbus Helicopters Model AS350B2 and AS350B3 helicopters. These helicopters as modified by Garmin International, Inc., (Garmin) will have a novel or unusual design feature associated with the Garmin Flight Control (GFC) 600H autopilot with stability and control augmentation system (AP/SCAS). 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 your comments on or before January 22, 2018.

ADDRESSES: Send comments identified by docket number [FAA–2017–1130] using any of the following methods:

- *Federal eRegulations Portal:* Go to *http://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 8 a.m., and 5 p.m., Monday through Friday, except Federal holidays.
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Privacy: The FAA will post all comments it receives, without change, to *http://www.regulations.gov,* including any personal information the commenter provides. Using the search function of the docket Web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the **Federal Register** published on April 11, 2000 (65 FR 19477–19478), as well as at *http://DocketsInfo.dot.gov.*

Docket: Background documents or comments received may be read at *http://www.regulations.gov* at any time. Follow the online instructions for accessing the docket or go to the 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: George Harrum, Aerospace Engineer, FAA, Rotorcraft Standards Branch, Policy and Innovations Division, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone (817) 222–4087; email *George.Harrum@faa.gov.*

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite 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 special conditions, explain the reason for any recommended change, and include supporting data.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions based on the comments we receive.

Background

On October 10, 2016, Garmin applied for a supplemental type certificate (STC) to install a GFC 600H AP/SCAS in Airbus Helicopters Model AS350B2 and AS350B3 helicopters. The Model AS350B2 and AS350B3 helicopters are 14 CFR part 27 normal category, single turbine engine, conventional helicopters designed for civil operation. These helicopter models are capable of carrying up to five passengers with one pilot and have a maximum gross weight of up to 5,220 pounds, depending on the model configuration. The major design features include a 3-blade, fully articulated main rotor, an anti-torque tail rotor system, a skid landing gear, and a visual flight rule basic avionics configuration.

Garmin proposes to modify these model helicopters by installing a SCAS with autopilot functions in 2 or 3 axes, depending on the number of servos installed. The possible failure conditions for this system, and their effect on the continued safe flight and landing of the helicopter, are more severe than those envisioned by the present rules. The present 14 CFR 27.1309(b) and (c) regulations do not adequately address the safety requirements for systems whose failures could result in ''catastrophic'' or ''hazardous/severe-major'' failure conditions, or for complex systems whose failures could result in ''major'' failure conditions. When these rules were promulgated, it was not envisioned that a normal category rotorcraft would use systems that are complex or whose failure could result in ''catastrophic'' or ''hazardous/severe-major'' effects on the rotorcraft. This is particularly true with the application of new technology, new application of standard technology, or other applications not envisioned by the rule that affect safety. The Garmin AP/SCAS controls rotorcraft flight control surfaces. Possible failure modes exhibited by this system could result in a catastrophic event.

Type Certification Basis

Under 14 CFR 21.101 and 21.115, Garmin must show that the Airbus Helicopters Model AS350B2 and AS350B3 helicopters, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. H9EU or the applicable regulations in effect on the date of application for the change. The

regulations incorporated by reference in the type certificate are commonly referred to as the ''original type certification basis.'' The regulations incorporated by reference in Type Certificate No. H9EU are as follows:

14 CFR 21.29 and part 27 effective February 1, 1965, plus Amendments 27–1 through 27–10.

For aircraft incorporating mod. OP3369 (2370 kg/5225 lb mass extension), the following 14 CFR part 27 Amendments 27–1 through 27–40 are replacing the same requirement from the certification basis above: 27 § 1; § 21; § 25; § 27; § 33; § 45; § 51; § 65; § 71; § 73; § 75; § 79; § 141; § 143; § 173; § 175; § 177; § 241; § 301; § 303; § 305; § 307; § 309; § 321; § 337; § 339; § 341; § 351; § 471; § 473; § 501; § 505; § 521; § 547; § 549; § 563(b); § 571; § 602; § 661; § 663; § 695; § 723; § 725; § 727; § 737; § 751; § 753; § 801(b)(d); § 927(c); § 1041; § 1043; § 1045; § 1301; § 1501; § 1519; § 1529; § 1581; § 1583; § 1585; § 1587; § 1589.

For AS350B3 aircraft incorporating mod. OP–4605 (installation of a fuel system improving crashworthiness), 14 CFR 27.561(c) at Amendment 27–32 replaces the same requirement from the certification basis above for the following elements of the fuel tank lower structure affected by this modification: Cradles, longitudinal beams, X-stops and rods.

Additionally, Garmin must comply with the equivalent level of safety findings, exemptions, and special conditions prescribed by the Administrator as part of the certification basis.

The Administrator has determined the applicable airworthiness regulations (that is, 14 CFR part 27), as they pertain to this STC, do not contain adequate or appropriate safety standards for the Airbus Helicopters Model AS350B2 and AS350B3 helicopters because of a novel or unusual design feature. Therefore, we propose to prescribe these special conditions under § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the applicant apply for an STC to change any other model included on the same type certificate to incorporate 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, Garmin must show that the Airbus Helicopters Model AS350B2 and AS350B3 helicopters, as changed, comply with 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 § 21.101.

Novel or Unusual Design Features

The Airbus Helicopters Model AS350B2 and AS350B3 helicopter will incorporate the following novel or unusual design features: A GFC 600H AP/SCAS. This GFC 600H AP/SCAS performs non-critical control functions. The GFC 600H AP/SCAS is a two or three axis system with the following novel functions: Limit cueing, level mode, and hover assist.

Discussion

The proposed special condition clarifies the requirement to perform a proper failure analysis and also recognizes that the severity of failures can vary. Current industry standards and practices recognize five failure condition categories: Catastrophic, Hazardous, Major, Minor, and No-Safety Effect. The proposed special condition addresses the safety requirements for systems whose failures could result in catastrophic or hazardous/severe-major failure conditions and for complex systems whose failures could result in major failure conditions.

To comply with the provisions of the special conditions, we propose to require that Garmin provide the FAA with a systems safety assessment (SSA) for the final GFC 600H AP/SCAS installation configuration that will adequately address the safety objectives established by a functional hazard assessment (FHA) and a preliminary system safety assessment (PSSA), including the fault tree analysis (FTA). This will ensure that all failure conditions and their resulting effects are adequately addressed for the installed GFC 600H AP/SCAS. The SSA process, FHA, PSSA, and FTA are all parts of the overall safety assessment process discussed in FAA Advisory Circular 27–1B, *Certification of Normal Category Rotorcraft,* and Society of Automotive Engineers document Aerospace Recommended Practice 4761, *Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment.*

These proposed special conditions would require that the GFC 600H AP/SCAS installed on Airbus Helicopters Model AS350B2 and Model AS350B3 helicopters meet the requirements to adequately address the failure effects identified by the FHA, and subsequently verified by the SSA, within the defined design integrity requirements.

Applicability

These special conditions are applicable to Airbus Helicopters Model AS350B2 and AS350B3 helicopters. Should Garmin apply at a later date for an STC to modify any other model included on Type Certificate Number H9EU to incorporate the same novel or unusual design feature, the special conditions would apply to that model as well.

Conclusion

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

List of Subjects in 14 CFR Part 27

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

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

The Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for Airbus Helicopters Model AS350B2 and AS350B3 helicopters modified by Garmin International, Inc. (Garmin).

Instead of the requirements of 14 CFR 27.1309(b) and (c), the following must be met for certification of the Garmin Flight Control 600H autopilot with stability and control augmentation system:

(a) The equipment and systems must be designed and installed so that any equipment and system does not adversely affect the safety of the rotorcraft or its occupants.

(b) The rotorcraft systems and associated components considered separately and in relation to other systems, must be designed and installed so that:

(1) The occurrence of any catastrophic failure condition is extremely improbable;

(2) The occurrence of any hazardous failure condition is extremely remote; and

(3) The occurrence of any major failure condition is remote.

(c) Information concerning an unsafe system operating condition must be provided in a timely manner to the crew to enable them to take appropriate corrective action. An appropriate alert must be provided if immediate pilot awareness and immediate or subsequent corrective

action is required. Systems and controls, including indications and annunciations, must be designed to minimize crew errors which could create additional hazards.

Issued in Fort Worth, Texas on November 29, 2017.

Larry M. Kelly,

Manager, Rotorcraft Standards Branch, Policy and Innovation Division, Aircraft Certification Service.

[FR Doc. 2017–26420 Filed 12–6–17; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 29

[Docket No. FAA–2017–1129; Notice No. 29–042–SC]

Special Conditions: Bell Helicopter Textron, Inc. (BHTI), Model 525 Helicopter; Mode Annunciation

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: We propose special conditions for the BHTI Model 525 helicopter. This helicopter will have a novel or unusual design feature associated with fly-by-wire flight control system (FBW FCS) functions that affect the pilot awareness of the flight control modes while operating the helicopter. 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 your comments on or before January 22, 2018.

ADDRESSES: Send comments identified by docket number [FAA–2017–XXXX] using any of the following methods:

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FOR FURTHER INFORMATION CONTACT: George Harrum, Aerospace Engineer, Rotorcraft Standards Branch, Policy and Innovation Division, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone (817) 222–4087; email *George.Harrum@faa.gov.*

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite 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 special conditions, explain the reason for any recommended change, and include supporting data.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions based on the comments we receive.

Background

On December 15, 2011, BHTI applied for a type certificate for a new transport category helicopter designated as the Model 525. The aircraft 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 2.

The BHTI 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. Current regulations are inadequate in the area of pilot awareness of the flight control modes while operating the helicopter. The proposed special condition will require that suitable mode annunciation be provided to the flight crew for events that significantly change the operating mode of the system but do not merit the traditional warnings, cautions, and advisories.

Type Certification Basis

Under the provisions of 14 CFR 21.17, BHTI must show that the Model 525 helicopter meets the applicable provisions of part 29, as amended by Amendment 29–1 through 29–55 thereto. The BHTI Model 525 certification basis date is December 31, 2013, the effective date of application to the FAA.

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 BHTI 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 BHTI 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 BHTI Model 525 helicopter will incorporate the following novel or unusual design features: A four-axis full authority digital FBW FCS. Pilot control inputs, through the mechanically linked cockpit controls (cyclic, collective, directional pedals), are transmitted electrically to each of the three Flight Control Computers (FCCs). The pilot control input signals are then processed and transmitted to the hydraulic flight control actuators which affect control of