model already included on the same type certificate be modified 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 ERJ 190–300 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 § 11.38, and they become part of the type certification basis under § 21.101.

Novel or Unusual Design Features

The ERJ 190–300 will incorporate the following novel or unusual design feature: An electronic flight control system that contains fly-by-wire control laws, including flight envelope protection functions that impose pitch-angle, bank-angle, and high-speed limits during normal operation.

Discussion

The Embraer S.A. ERJ 190–300 design has a full-digital flight control system, referred to as fly-by-wire architecture. The fly-by-wire architecture provides closed-loop flight control laws and multiple protection functions.

The basic characteristics of pitch, bank, and high-speed limiting functions are as follows:

1. Pitch Limiting Function:

While in normal mode, the ERJ 190–300 airplane presents positive and negative pitch attitude soft limits. After surpassing the established limits set at 30° and −15°, the airplane presents a natural tendency to return (positive stability) to within these limits when pitch control is released.

2. Bank Limiting Function (Spiral Stability and Roll Limiting):

While in normal mode at speeds up to V_{MO}/M_{MO} (maximum operating limit speed), the ERJ 190–300 airplane presents neutral stability up to 33° bank angle. Above 33°, positive spiral stability is introduced; however, there is no bank angle hard limit. When overspeed protection is engaged, positive spiral stability is provided in the range of ±33° and a bank angle hard limit (non-overridable) is set at that bank angle.

3. High-Speed Limiting Function (Overspeed Protection):

While in normal mode, the overspeed protection function prevents pilots from exceeding the airplane maximum design speeds by providing strong positive stability at and above V_{MO}/M_{MO}, and limiting aircraft speed to V_{DF}/M_{DF} (demonstrated flight diving speed).

The controllability and maneuverability requirements of 14 CFR 25.143 do not specifically relate to flight characteristics associated with fixed attitude limits or a high-speed limiter that might preclude or modify flying qualities assessment in the overspeed region.

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.

Applicability

As discussed above, these special conditions are applicable to the ERJ 190–300 series airplanes. Should Embraer S.A. 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 one model of airplane. It is not a rule of general applicability.

The substance of these special conditions has been subjected to the notice and comment period in several prior instances and has been derived without substantive change from those previously issued. It is unlikely that prior public comment would result in a significant change from the substance contained herein. Therefore, because a delay would affect the certification of the airplane, the FAA has determined that prior public notice and comment are unnecessary and impracticable, and good cause exists for adopting these special conditions upon publication in the **Federal Register**. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above.

List of Subjects in 14 CFR Part 25

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 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 Embraer S.A. Model ERJ 190–300 series airplanes.

Flight Envelope Protection: Pitch, Roll, and High-Speed Limiting Functions

In addition to § 25.143, the following requirements apply:

1. Pitch and Roll Limiting Functions.

a. The pitch limiting function must not impede normal maneuvering for pitch angles up to the maximum required for normal maneuvering, including a normal all-engines operating takeoff, plus a suitable margin to allow for satisfactory speed control.

b. The pitch and roll limiting functions must not restrict or prevent attaining pitch attitudes necessary for emergency maneuvering or roll angles up to 66° with flaps up or 60° with flaps down. Spiral stability, which is introduced above 33° roll angle, must not require excessive pilot strength to achieve these roll angles. Other protections, which further limit the roll capability under certain extreme angle of attack or attitude or high speed conditions, are acceptable, as long as they allow at least 45° of roll capability.

c. A lower limit of roll is acceptable, beyond the overspeed warning, if it is possible to recover the aircraft to the normal flight envelope without undue difficulty or delay.

2. High-Speed Limiting Functions.

Operation of the high-speed limiter during all routine and descent procedure flight must not impede normal attainment of speeds up to overspeed warning.

Michael Kaszycki,

Assistant Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 2017–05200 Filed 3–15–17; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 27

[Docket No. FAA–2017–0167; Special Conditions No. 27–032–SC]

Special Conditions: Robinson Helicopter Company Model R22 BETA Helicopter; Installation of Helitrak Autopilot System

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Robinson Helicopter Company (Robinson) Model R22 BETA helicopter. This helicopter as modified

by Helitrak, Incorporated (Helitrak) will have a novel or unusual design feature associated with an autopilot (AP) system. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards the Administrator considers necessary to establish a level of safety equivalent to that ensured by the existing airworthiness standards.

DATES: The effective date of these special conditions is March 16, 2017. We must receive your comments by May 15, 2017.

ADDRESSES: Send comments identified by docket number [FAA–2017–0167] 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 of Courier:* Deliver comments 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.
- *Fax:* Fax comments to Docket Operations at 202–493–2251.

Privacy: The FAA will post all comments it receives, without change, to *http://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: You can read the background documents or comments received at *http://www.regulations.gov.* 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: Mark Wiley, Aviation Safety Engineer, FAA, Rotorcraft Directorate, Regulations and Policy Group (ASW–111), 10101 Hillwood Parkway, Fort Worth, TX 76177; telephone (817) 222–5134; or email to *Mark.Wiley@faa.gov.*

SUPPLEMENTARY INFORMATION:

Reason for No Prior Notice and Comment Before Adoption

The FAA considers prior notice to be unnecessary as we have provided previous opportunities to comment on substantially identical proposed special conditions, and we are satisfied that new comments are unlikely. Therefore, the FAA has determined that prior public notice and comment are unnecessary and finds that good cause exists for adopting these special conditions effective upon issuance. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment.

Comments Invited

While we did not precede this with a notice of proposed special conditions, we invite interested people to take part in this action 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 by 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 January 27, 2012, Helitrak applied for a supplemental type certificate (STC) to install an AP system on the Robinson Model R22 BETA helicopter. The Robinson Model R22 BETA helicopter, currently approved under Type Certificate No. H10WE, is a 14 CFR part 27 normal category, single reciprocating engine, conventional helicopter designed for civil operation. This helicopter model is capable of carrying one passenger with one pilot, and has a maximum gross weight of up to 1,370 pounds. The major design features include a two-blade teetering main rotor, an anti-torque tail rotor system, a skid landing gear, and a visual flight rule basic avionics configuration. Helitrak proposes to modify this model helicopter by installing a two-axis Helitrak AP.

The present § 27.1309(c) regulation does 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 § 27.1309(c) was 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. The Helitrak AP 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, Helitrak must show that the Robinson Model R22 BETA helicopter, as modified by the installed Helitrak AP, continues to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. H10WE or the applicable regulations in effect on the date of application for the change. Additionally, Helitrak must comply with the following equivalent level of safety findings, exemptions, and special conditions prescribed by the Administrator as part of the certification basis:

14 CFR part 27 dated February 1, 1965, including Amendments 27–1 through 27–10
National Environmental Act of 1969
Noise Control Act of 1972
Equivalent Safety Finding: Number TD10352LA–R/S–1
14 CFR part 27.1401(d), Anticollision Light System

In addition, Helitrak must show the Helitrak AP STC-altered Robinson Model R22 BETA helicopter complies with the noise certification requirements of 14 CFR part 36.

Regulatory Basis for Special Conditions

If the Administrator finds the applicable airworthiness regulations (that is, 14 CFR part 27) do not contain adequate or appropriate safety standards for the Robinson Model R22 BETA helicopter because of a novel or unusual design feature, special conditions are prescribed under § 21.16.

The FAA issues special conditions, as defined in § 11.19, in accordance with § 11.38 and they become part of the type certification basis under § 21.101.

Special conditions are initially applicable to the model for which they are issued. Should Helitrak apply for an STC to modify any other model included on the H10WE type certificate to incorporate the same novel or unusual design feature, the special conditions would also apply to the other model.

Novel or Unusual Design Features

The Robinson Model R22 BETA will incorporate the following novel or unusual design features: A Helitrak AP. This AP system performs non-required flight control functions. The Helitrak AP is a two-axis system with two operational flight control modes: Heading and airspeed hold or heading and altitude hold. Other flight control functions include unusual attitude recovery, collective pulldown, and an autorotation function.

Discussion

The effect on safety is not adequately covered under § 27.1309 for the application of new technology and new application of standard technology. Specifically, the provisions of § 27.1309(c) do not adequately address 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 these special conditions, we require that Helitrak provide the FAA with a systems safety assessment (SSA) for the final Helitrak AP 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 Helitrak AP. 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 special conditions require that the Helitrak AP installed on a Robinson Model R22 BETA helicopter meets 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 the Robinson Model R22 BETA helicopter. Should Helitrak apply at a later date for an STC to modify any other model included on Type Certificate No. H10WE 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 one model 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.

Under standard practice, the effective date of final special conditions would be 30 days after the date of publication in the **Federal Register**; however, the substance of these special conditions has been subjected to the notice and comment period previously and has been derived without substantive change from those previously issued. As it is unlikely that prior public comment would result in a significant change from the substance contained herein, the FAA considers prior notice to be unnecessary and finds that good cause exists to make these special conditions effective upon issuance.

List of Subjects in 14 CFR Part 27

Aircraft, Aviation safety.

The authority citation for these special conditions is as follows:

Authority: 42 U.S.C. 7572; 49 U.S.C. 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 Robinson Helicopter Company (Robinson) Model R22 BETA helicopters as modified by Helitrak, Incorporated.

In addition to the requirement of § 27.1309(c), the Helitrak autopilot (AP) system installation on Robinson Model R22 BETA helicopters must be designed and installed so that the failure conditions identified in the functional hazard assessment (FHA) and verified by the system safety assessment (SSA) are adequately addressed in accordance with the following requirements.

Helitrak, Incorporated must provide the FAA with a SSA for the final Helitrak AP installation configuration that will adequately address the safety objectives established by the FHA and the preliminary system safety assessment (PSSA), including the fault tree analysis (FTA). This will show that all failure conditions and their resulting effects are adequately addressed for the installed Helitrak AP.

Note 1: The SSA process, FHA, PSSA, and FTA are all parts of the overall safety assessment (SA) process discussed in FAA Advisory Circular (AC) 27–1B (Certification of Normal Category Rotorcraft) and Society of Automotive Engineers (SAE) document Aerospace Recommended Practice (ARP) 4761 (Guidelines and Methods for Conducting the Safety Assessment Process on civil airborne Systems and Equipment).

Failure Condition Categories. Failure conditions are classified, according to the severity of their effects on the rotorcraft, into one of the following categories:

1. *No Effect.* Failure conditions have no effect on safety. These failure conditions would not affect the operational capability of the rotorcraft or increase crew workload; however, could result in an inconvenience to the occupants, excluding the flight crew.

2. *Minor.* Failure conditions do not significantly reduce rotorcraft safety, and involve crew actions that are well within their capabilities. Minor failure conditions would include, for example, a slight reduction in safety margins or functional capabilities, a slight increase in crew workload, such as, routine flight plan changes, or result in some physical discomfort to occupants.

3. *Major.* Failure conditions reduce the capability of the rotorcraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be, for example, a significant reduction in safety margins or functional capabilities, a significant increase in crew workload or result in impairing crew efficiency, physical distress to occupants, including injuries, or physical discomfort to the flight crew. The potential for a failure to result in a condition characterized as major should be remote with a probability of occurrence between 1×10^{-3} to 1×10^{-5} failures/flight hour.

4. *Hazardous/Severe-Major.*

a. Failure conditions reduce the capability of the rotorcraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be:

(1) A large reduction in safety margins or functional capabilities;

(2) physical distress or excessive workload that would impair the flight crew's ability to the extent that they could not be relied on to perform their tasks accurately or completely; or

(3) possible serious or fatal injury to a passenger or a cabin crewmember, excluding the flight crew. The potential that a failure results in a condition characterized as hazardous/severe-major should be extremely remote with a probability of occurrence between 1×10^{-5} to 1×10^{-7} failures/flight hour.

b. ''Hazardous/severe-major'' failure conditions can include events that are manageable by the crew by the use of proper procedures, which, if not implemented correctly or in a timely manner, may result in a catastrophic event.

5. *Catastrophic.* Failure conditions result in multiple fatalities to occupants, fatalities or incapacitation to the flight crew, or result in loss of the rotorcraft. The potential that a failure results in a condition characterized as catastrophic should be extremely improbable with probability of occurrence 1×10^{-9} failures/flight hour or less.

Requirements

Helitrak must comply with the existing requirements of § 27.1309 for all applicable design and operational aspects of the Helitrak AP with the failure condition categories of ''no effect'' and ''minor,'' and for non-complex systems whose failure condition category is classified as ''major.'' Helitrak must comply with the requirements of these special conditions for all applicable design and operational aspects of the Helitrak AP with the failure condition categories of ''catastrophic'' and ''hazardous severe/major,'' and for complex systems whose failure condition category is classified as ''major.'' A complex system is a system whose operations, failure conditions, or failure effects are difficult to comprehend without the aid of analytical methods (for example, FTA, Failure Modes and Effect Analysis, FHA).

System Design Integrity Requirements

Each of the failure condition categories defined in these special conditions relate to the corresponding aircraft system integrity requirements. The system design integrity requirements for the Helitrak AP, as they relate to the allowed probability of occurrence for each failure condition category and the proposed software design assurance level, are as follows:

Systems with failures that may result in a ''major'' effect must be shown to be remote and develop software to the Radio Technical Commission for Aeronautics (RTCA) Document DO–178B, *Software Considerations in Airborne Systems and Equipment Certification,* Level C software design assurance level and must develop complex hardware to the Radio Technical Commission for Aeronautics (RTCA) Document DO–254, *Design Assurance Guidance for Airborne Electronic Hardware,* Level C hardware design assurance level.

Systems with failures that may result in ''hazardous/severe-major'' effects must be shown to be extremely remote must develop software to the RTCA Document DO–178B, *Software Considerations in Airborne Systems and Equipment Certification,* Level B software design assurance level and must develop complex hardware to the Radio Technical Commission for Aeronautics (RTCA) Document DO–254, *Design Assurance Guidance for Airborne Electronic Hardware,* Level B hardware design assurance level.

Systems with failures that may result in ''catastrophic'' effects must be shown to be extremely improbable, and develop software to the RTCA Document DO–178B, *Software Considerations in Airborne Systems and Equipment Certification,* Level A design assurance level and must develop complex hardware to the Radio Technical Commission for Aeronautics (RTCA) Document DO–254, *Design Assurance Guidance for Airborne Electronic Hardware,* Level A hardware design assurance level.

System Design Environmental Requirements

The AP system equipment must be qualified to the appropriate environmental level per RTCA Document DO–160F, *Environmental Conditions and Test Procedures for Airborne Equipment,* for all relevant aspects. This is to show that the AP system performs its intended function under any foreseeable operating condition, including the expected environment in which the AP is intended to operate. Some of the main considerations for environmental concerns are installation locations and the resulting exposure to environmental conditions for the AP system equipment, including considerations for other equipment that may be affected environmentally by the AP equipment installation. The level of environmental qualification must be related to the severity of the considered failure conditions and effects on the rotorcraft.

Test & Analysis Requirements

Compliance with the requirements of these special conditions may be shown by a variety of methods, which typically consist of analysis, flight tests, ground tests, and simulation, at a minimum. Compliance methodology is related to the associated failure condition category. If the AP is a complex system, compliance with the requirements for failure conditions classified as ''major'' may be shown by analysis, in combination with appropriate testing, to validate the analysis. Compliance with the requirements for failure conditions classified as ''hazardous/severe-major'' may be shown by flight-testing in combination with analysis and simulation, and the appropriate testing to validate the analysis. Flight tests may be limited for ''hazardous/severe-major'' failure conditions and effects due to safety considerations. Compliance with the requirements for failure conditions classified as ''catastrophic'' may be shown by analysis and appropriate testing in combination with simulation to validate the analysis. Very limited flight tests in combination with simulation are used as a part of a showing of compliance for ''catastrophic'' failure conditions. Flight tests are performed only in circumstances that use operational variations, or extrapolations from other flight performance aspects to address flight safety.

These special conditions require that the Helitrak AP system installed on a Robinson Model R22 BETA helicopter, Type Certificate No. H10WE, meet these requirements to adequately address the failure effects identified by the FHA, and subsequently verified by the SSA, within the defined design system integrity requirements.

Issued in Fort Worth, Texas, on March 10, 2017.

Lance Gant,

Manager Rotorcraft Standard Staff, Aircraft Certification Service.

[FR Doc. 2017–05268 Filed 3–15–17; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 165

[Docket Number USCG–2016–0032]

RIN 1625–AA11

Regulated Navigation Areas; Escorted Submarines Sector Jacksonville Captain of the Port Zone

AGENCY: Coast Guard, DHS.

ACTION: Final rule.

SUMMARY: The Coast Guard is establishing regulated navigation areas (RNA) covering the St. Marys Entrance Channel, portions of the Cumberland Sound, and the Atlantic Ocean that will be in effect whenever any Navy submarine (foreign or domestic) is escorted by the Coast Guard and operating within the jurisdictional waters of the Sector Jacksonville Captain of the Port Zone. These RNAs