the cargo compartment. The basic Model A350–900 series configuration will accommodate 315 passengers in a standard two-class arrangement. The design cruise speed is Mach 0.85 with a Maximum Take-Off Weight of 602,000 lbs. Airbus proposes the Model A350–900 series to be certified for extended operations (ETOPS) beyond 180 minutes at entry into service for up to a 420-minute maximum diversion time.

Flight envelope protection is the subject of several proposed special conditions for the A350. Each specific type of envelope protection is addressed individually, but some requirements are common to all limiting systems and are therefore put forth as general limiting requirements.

Type Certification Basis

Under Title 14, Code of Federal Regulations (14 CFR) 21.17, Airbus must show that the Model A350–900 series meets the applicable provisions of 14 CFR part 25, as amended by Amendments 25–1 through 25–129.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Model A350–900 series because of a novel or unusual design feature, special conditions are prescribed under § 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 proposed special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and proposed special conditions, the Model A350–900 series 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 and the FAA must issue a finding of regulatory adequacy under section 611 of Public Law 92–574, the ''Noise Control Act of 1972.''

The FAA issues special conditions, as defined in 14 CFR 11.19, under § 11.38, and they become part of the type-certification basis under § 21.17(a)(2).

Novel or Unusual Design Features

The Airbus Model A350–900 series will incorporate the following novel or unusual design features: General Limiting Requirements for the flight envelope protection system.

Discussion

This proposed special condition and the following ones which pertain to flight envelope protection present general limiting requirements for all the unique flight envelope protection features of the basic A350 Electronic Flight Control System (EFCS) design. Current regulations do not address these types of protection features. The general limiting requirements are necessary to ensure a smooth transition from normal flight to the protection mode and adequate maneuver capability. The general limiting requirements also ensure that the structural limits of the airplane are not exceeded. Furthermore, failure of the protection feature must not create hazardous flight conditions. Envelope protection parameters include angle of attack, normal load factor, bank angle, pitch angle, and speed. To accomplish these envelope protections, one or more significant changes occur in the EFCS control laws as the normal flight envelope limit is approached or exceeded.

Applicability

As discussed above, these proposed special conditions apply to Airbus Model A350–900 series airplanes. Should Airbus apply later for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the proposed special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on the Airbus Model A350–900 series airplanes. It is not a rule of general applicability.

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 Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for Airbus Model A350–900 series airplanes.

1. General Limiting Requirements.

a. Onset characteristics of each envelope protection feature must be smooth, appropriate to the phase of flight and type of maneuver, and not in conflict with the ability of the pilot to satisfactorily change airplane flight path, speed, or attitude as needed.

b. Limit values of protected flight parameters (and if applicable, associated warning thresholds) must be compatible with the following:

(1) Airplane structural limits,

(2) Required safe and controllable maneuvering of the airplane, and

(3) Margins to critical conditions.

Unsafe flight characteristics/conditions must not result if dynamic maneuvering, airframe and system tolerances (both manufacturing and in-service), and non-steady atmospheric conditions, in any appropriate combination and phase of flight, can produce a limited flight parameter beyond the nominal design limit value.

c. The airplane must be responsive to intentional dynamic maneuvering to within a suitable range of the parameter limit. Dynamic characteristics such as damping and overshoot must also be appropriate for the flight maneuver and limit parameter in question.

d. When simultaneous envelope limiting is engaged, adverse coupling or adverse priority must not result.

2. Failure States

EFCS failures (including sensor) must not result in a condition where a parameter is limited to such a reduced value that safe and controllable maneuvering is no longer available. The crew must be alerted by suitable means if any change in envelope limiting or maneuverability is produced by single or multiple failures of the EFCS not shown to be extremely improbable.

Issued in Renton, Washington, on October 22, 2013.

Stephen P. Boyd,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 2014–00448 Filed 1–13–14; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA–2013–0907; Notice No. 25–13–19–SC]

Special Conditions: Airbus, Model A350–900 series airplane; Tire Failure—Debris Penetration or Rupture of Fuel Tank Structure

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for the Airbus Model A350–900 series airplane. These airplanes will have a novel or unusual design feature

associated with fuel tanks constructed of carbon fiber reinforced plastic (CFRP) materials located within the tire impact zone, including the wing fuel tanks.

The ability of aluminum wing skins, as has been conventionally used, to resist penetration or rupture when impacted by tire debris is understood from extensive experience. The ability of carbon fiber composite material to resist these hazards has not been established. There are no current airworthiness standards specifically addressing this hazard for all exposed wing surfaces. 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 February 28, 2014.

ADDRESSES: Send comments identified by docket number FAA–2013–0907 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 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://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: Doug Bryant, Propulsion/Mechanical Systems, ANM–112, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98057–3356; telephone (425) 227–2384; facsimile (425) 227–1320.

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 may change these proposed special conditions based on the comments we receive.

Background

On August 25, 2008, Airbus applied for a type certificate for their new Model A350–900 series airplane. Later, Airbus requested and the FAA approved an extension to the application for FAA type certification to June 28, 2009. The Model A350–900 series has a conventional layout with twin wing-mounted Rolls-Royce Trent engines. It features a twin aisle 9-abreast economy class layout, and accommodates side-by-side placement of LD–3 containers in the cargo compartment. The basic Model A350–900 series configuration will accommodate 315 passengers in a standard two-class arrangement. The design cruise speed is Mach 0.85 with a Maximum Take-Off Weight of 602,000 lbs. Airbus proposes the Model A350–900 series to be certified for extended operations (ETOPS) beyond 180 minutes at entry into service for up to a 420 minute maximum diversion time.

Accidents have resulted from uncontrolled fires caused by fuel leaks following penetration or rupture of the lower wing by fragments of tires or from uncontained engine failure. In a November 1984 accident, a Boeing Model 747 tire burst during an aborted takeoff from Honolulu, Hawaii. That tire debris penetrated a fuel tank access cover causing substantial fuel leakage. Passengers were evacuated down the emergency slides into pools of fuel that fortunately had not ignited.

After an August 1985 Boeing Model 737 accident in Manchester, England, in which a fuel tank access panel was penetrated by engine debris creating a fire, the FAA amended Title 14, Code of Federal Regulations (14 CFR) 25.963 to require fuel tank access panels that are resistant to both tire and engine debris (engine debris is addressed outside of this proposed special condition). Modifications to the access covers were required of the existing fleet by an amendment to part 121. This regulation, § 25.963(e), only addressed the fuel tank access covers since service experience at the time showed that the lower wing skin of a conventional, subsonic airplane provided adequate inherent capability to resist tire and engine debris threats. More specifically, this regulation requires showing by analysis or tests that the access covers ''. . . minimize penetration and deformation by tire fragments, low energy engine debris, or other likely debris.'' Advisory Circular (AC) 25.963–1 defines the region of the wing that is vulnerable to impact damage from these sources and provides a method to substantiate that the rule has been met for tire fragments. No specific requirements were established for the contiguous wing areas into which the access covers are installed. AC 25.963–1 specifically notes, ''The access covers, however, need not be more impact resistant than the contiguous tank structure,'' highlighting the assumption that the wing was adequately addressed.

The Concorde accident in July 2000 is the most notable example. That accident demonstrated an unanticipated failure mode in an airplane with an unusual transport airplane configuration. Impact to the thin aluminum wing surface by tire debris induced pressure waves within the fuel tank that resulted in fuel leakage and fire. The skin on the Concorde delta wing, supersonic airplane is made of aluminum having a thickness that is much less than that of a conventional subsonic airplane.

There were several previous accidents from burst tires that damaged the fuel tank and wings in the Concorde. In 1979 a burst main gear tire put a hole through the wing and caused both fuel and hydraulic leaks. In 1980 a burst tire damaged the engine and airframe. In July 1993 a main gear tire burst, damaging the wing and causing hydraulic problems. In October 1993 a main gear tire burst, broke the water deflector, and caused some holes in the fuel tank. Fortunately the fuel did not catch fire during any of these events before the July 2000 accident involving the Concorde airplane.

Following the accident in 2000, regulatory authorities required modifications to the Concorde aircraft to improve impact resistance of the lower

wing, or means to retain fuel if the primary fuel retention means is damaged.

These accidents and incidents highlight the need to establish standards for fuel tank designs and configurations that were not envisioned when the existing standards in 14 CFR part 25 were issued.

Type Certification Basis

Under 14 CFR 21.17, Airbus must show that the Model A350–900 series meets the applicable provisions of part 25, as amended by Amendments 25–1 through 25–129.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for Model A350–900 series airplanes 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 proposed special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and proposed special conditions, the Model A350–900 series 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 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 Airbus Model A350–900 series will incorporate the following novel or unusual design features: CFRP materials for most of the wing fuel tank structure.

Discussion

In order to maintain the level of safety prescribed by § 25.963(e) for fuel tank access covers, these special conditions establish a standard for resistance to potential tire debris impacts to the contiguous wing surfaces and require consideration of possible secondary effects of a tire impact, such as the induced pressure wave that was a factor in the Concorde accident. It takes into account that new construction methods and materials may not necessarily provide the resistance to debris impact that has historically been shown as adequate. These proposed special conditions are based on the defined tire impact areas and tire fragment characteristics described in AC 25.963–1.

In addition, despite practical design considerations, some uncommon debris larger than that defined in paragraph (b) may cause a fuel leak within the defined area, so paragraph (c) of these proposed special conditions also takes into consideration possible leakage paths. Fuel tank surfaces of typical transport airplanes have thick aluminum construction in the tire debris impact areas that is tolerant to tire debris larger than that defined in paragraph (b) of these proposed special conditions. Consideration of leaks caused by larger tire fragments is needed to ensure that an adequate level of safety is provided.

Note: While § 25.963 includes consideration of uncontained engine debris, the effects of engine debris are not included in these proposed special conditions because these related potential hazards will be addressed on the Model A350–900 series under the existing requirements of § 25.903(d). Section 25.903(d) requires minimizing the hazards from uncontained engine debris.

Applicability

As discussed above, these proposed special conditions are applicable to Airbus Model A350–900 series airplanes. Should Airbus apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the proposed special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on Airbus Model A350–900 series airplanes. It is not a rule of general applicability.

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 Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for Airbus Model A350–900 series airplanes.

Debris Impacts to Fuel Tanks

(a) Impacts by tire debris to any fuel tank or fuel system component located within 30 degrees to either side of wheel rotational planes may not result in penetration or otherwise induce fuel tank deformation, rupture (for example, through propagation of pressure waves), or cracking sufficient to allow a hazardous fuel leak. A hazardous fuel leak results if debris impact to a fuel tank surface causes—

1. A running leak,

2. a dripping leak, or

3. a leak that, 15 minutes after wiping dry, results in a wetted airplane surface exceeding 6 inches in length or diameter.

The leak must be evaluated under maximum fuel head pressure.

(b) Compliance with paragraph (a) must be shown by analysis or tests assuming all of the following.

1. The tire debris fragment size is 1 percent of the tire mass.

2. The tire debris fragment is propelled at a tangential speed that could be attained by a tire tread at the airplane flight manual airplane rotational speed (V_R at maximum gross weight).

3. The tire debris fragment load is distributed over an area on the fuel tank surface equal to 1½ percent of the total tire tread area.

(c) Fuel leaks caused by impact from tire debris larger than that specified in paragraph (b), from any portion of a fuel tank or fuel system component located within the tire debris impact area defined in paragraph (a), may not result in hazardous quantities of fuel entering any of the following areas of the airplane.

1. Engine inlet,

2. APU inlet, or

3. Cabin air inlet.

This must be shown by test or analysis, or a combination of both, for each approved engine forward thrust condition and each approved reverse thrust condition.

Issued in Renton, Washington, on October 22, 2013.

Stephen P. Boyd,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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