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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM298, Special Conditions No. 25-282-SC]

Special Conditions: Dassault-Breguet Model Falcon 10 Airplane; High Intensity Radiated Fields (HIRF)

AGENCY: Federal Aviation Administration (FAA) DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for a Dassault-Breguet Model Falcon 10 airplane modified by Long Beach Avionics of Long Beach, California. The modified airplane will have novel and unusual design features when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. The modification incorporates the installation of a Collins Model ALI-80 Altimeter and Model MSI-80 Mach Airspeed Indicator. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for the protection of these systems from the effects of high-intensity radiated fields (HIRF). These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that provided by the existing airworthiness standards.

DATES: The effective date of these special conditions is December 23, 2004. Comments must be received on or before February 7, 2005.

ADDRESSES: Comments on these special conditions may be mailed in duplicate to: Federal Aviation Administration, Transport Airplane Directorate, Attn: Rules Docket (ANM-113), Docket No. NM298, 1601 Lind Avenue SW.,

Renton, Washington, 98055-4056; or delivered in duplicate to the Transport Airplane Directorate at the above address. All comments must be marked: Docket No. NM298. Comments may be inspected in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT: Greg Dunn, FAA, Airplane and Flight Crew Interface Branch, ANM-111, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98055-4056; telephone (425) 227-2799; facsimile (425) 227-1149.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA has determined that notice and opportunity for prior public comment is impracticable, because these procedures would significantly delay certification and thus delivery of the affected airplane. In addition, the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received. The FAA, therefore, finds that good cause exists for making these special conditions effective upon issuance; however, the FAA invites interested persons to participate in this rulemaking by submitting 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 ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning these special conditions. The docket is available for public inspection before and after the comment closing date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this preamble between 7:30 a.m., and 4 p.m., Monday through Friday, except Federal holidays.

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 received.

If you want the FAA to acknowledge receipt of your comments on these special conditions, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

Background

On October 11, 2004, Long Beach Avionics of Long Beach, California, applied to the FAA, Los Angeles Aircraft Certification Office for a supplemental type certificate (STC) to modify a Dassault-Breguet Model Falcon 10 airplane. The proposed modification incorporates the installation of a Collins Model ALI-80 Altimeter and a Model MSI-80 Mach Airspeed Indicator as primary instruments. These digital instruments would perform critical functions, that is, functions whose failure would prevent the continued safe flight and landing of the airplane. The Altimeter and Mach Airspeed Indicator to be installed in the airplane have the potential to be vulnerable to high-intensity radiated fields (HIRF) external to the airplane.

Type Certification Basis

Under the provisions of 14 CFR 21.101, Amendment 21-69, effective September 16, 1991, Long Beach Avionics must show that the Model Falcon 10 airplane, as changed, continues to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A33EU 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. A33EU include 14 CFR part 25, as amended by Amendments 25-1 through 25-20.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, part 25, as amended) do not contain adequate or appropriate safety standards for the modified Dassault-Breguet Model Falcon 10 airplane because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Model Falcon 10

airplane 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.

Special conditions, as defined in 14 CFR 11.19, are issued in accordance with § 11.38 and become part of the type certification basis in accordance with § 21.101.

Special conditions are initially applicable to the model for which they are issued. Should Long Beach Avionics apply at a later date for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same or similar novel or unusual design feature, these special conditions would also apply to the other model under the provisions of § 21.101.

Novel or Unusual Design Features

The Dassault-Breguet Model Falcon 10 airplane modified by Long Beach Avionics will incorporate new digital equipment that will perform critical functions. These systems may be vulnerable to HIRF external to the airplane. The current airworthiness standards of part 25 do not contain adequate or appropriate safety standards for the protection of this equipment from the adverse effects of HIRF. Accordingly, this system is considered to be a novel or unusual design feature.

Discussion

There is no specific regulation that addresses protection requirements for electrical and electronic systems from HIRF. Increased power levels from ground-based radio transmitters and the growing use of sensitive avionics/electronics and electrical systems to command and control airplanes have made it necessary to provide adequate protection.

To ensure that a level of safety is achieved equivalent to that intended by the regulations incorporated by reference, special conditions are needed for the Dassault-Breguet Model Falcon 10 airplane modified by Long Beach Avionics. These special conditions require that new digital equipment that perform critical functions be designed and installed to preclude component damage and interruption of function due to both the direct and indirect effects of HIRF.

High-Intensity Radiated Fields (HIRF)

With the trend toward increased power levels from ground-based transmitters and the advent of space and satellite communications, coupled with electronic command and control of the airplane, the immunity of critical digital

avionics/electronics and electrical systems to HIRF must be established.

It is not possible to precisely define the HIRF to which the airplane will be exposed in service. There is also uncertainty concerning the effectiveness of airframe shielding for HIRF.

Furthermore, coupling of electromagnetic energy to cockpit-installed equipment through the cockpit window apertures is undefined. Based on surveys and analysis of existing HIRF emitters, an adequate level of protection exists when compliance with the HIRF protection special condition is shown with either paragraph 1 or 2 below:

1. A minimum threat of 100 volts rms (root-mean-square) per meter electric field strength from 10 KHz to 18 GHz.

a. The threat must be applied to the system elements and their associated wiring harnesses without the benefit of airframe shielding.

b. Demonstration of this level of protection is established through system tests and analysis.

2. A threat external to the airframe of the field strengths indicated in the following table for the frequency ranges indicated. Both peak and average field strength components from the table are to be demonstrated.

Frequency	Field strength (volts per meter)	
	Peak	Average
10 kHz–100 kHz ...	50	50
100 kHz–500 kHz	50	50
500 kHz–2 MHz	50	50
2 MHz–30 MHz	100	100
30 MHz–70 MHz ...	50	50
70 MHz–100 MHz	50	50
100 MHz–200 MHz	100	100
200 MHz–400 MHz	100	100
400 MHz–700 MHz	700	50
700 MHz–1 GHz ...	700	100
1 GHz–2 GHz	2000	200
2GHz–4 GHz	3000	200
4 GHz–6 GHz	3000	200
6 GHz–8 GHz	1000	200
8 GHz–12 GHz	3000	300
12 GHz–18 GHz ...	2000	200
18 GHz–40 GHz ...	600	200

The field strengths are expressed in terms of peak of the root-mean-square (rms) over the complete modulation period.

The threat levels identified above are the result of an FAA review of existing studies on the subject of HIRF, in light of the ongoing work of the Electromagnetic Effects Harmonization Working Group of the Aviation Rulemaking Advisory Committee.

Applicability

As discussed above, these special conditions are applicable to a Dassault-Breguet Model Falcon 10 airplane modified by Long Beach Avionics.

Should Long Beach Avionics apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate A33EU to incorporate the same or similar novel or unusual design feature, these special conditions would apply to that model as well as under the provisions of 14 CFR 21.101.

Conclusion

This action affects only certain design features on the Dassault-Breguet Model Falcon 10 airplane modified by Long Beach Avionics. It is not a rule of general applicability and affects only the applicant which applied to the FAA for approval of these features on the airplane.

The substance of the special conditions for this airplane has been subjected to the notice and comment procedure in several prior instances and has been derived without substantive change from those previously issued. Because a delay would significantly affect the certification of the airplane, which is imminent, the FAA has determined that prior public notice and comment are unnecessary and impracticable and good cause exists for adopting these special conditions immediately. 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 record keeping 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 supplemental type certification basis for the modified Dassault-Breguet Model Falcon 10 airplane:

1. *Protection From Unwanted Effects of High-Intensity Radiated Fields (HIRF).* Each electrical and electronic system that performs critical functions must be designed and installed to ensure that the operation and operational capability of these systems to perform critical functions are not adversely affected when the airplane is exposed to high intensity radiated fields.

2. For the purpose of these special conditions, the following definition

applies: *Critical Functions*: Functions whose failure would contribute to or cause a failure condition that would prevent the continued safe flight and landing of the airplane.

Issued in Renton, Washington, on December 23, 2004.

Kevin Mullin,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.
[FR Doc. 05-236 Filed 1-5-05; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM287; Special Conditions No. 25-281-SC]

Special Conditions: Airbus Model A330, A340-200 and A340-300 Series Airplanes; Lower Deck Mobile Crew Rest (LD-MCR) Compartment

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for the Airbus Model A330, A340-200, and A340-300 series airplanes. These airplanes will have novel or unusual design features associated with a lower deck mobile crew rest (LD-MCR) compartment. 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.

EFFECTIVE DATE: December 23, 2004.

FOR FURTHER INFORMATION CONTACT: Tim Backman, FAA, International Branch, ANM-116, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98055-4056; telephone (425) 227-2797; facsimile (425) 227-1149.

SUPPLEMENTARY INFORMATION:

Background

On March 20, 2003, Airbus applied for a change to Type Certificate Numbers A46NM and A43NM to permit installation of an LD-MCR compartment in Airbus Model A330, A340-200, and A340-300 series airplanes.

The LD-MCR compartment will be located under the passenger cabin floor in the aft cargo compartment of Airbus

Model A330, A340-200, and A340-300 series airplanes. It will be the size of a standard airfreight container and will be removable from the cargo compartment. The LD-MCR compartment will be occupied in flight but not during taxi, takeoff, or landing. No more than seven crewmembers at a time will be permitted to occupy it. The LD-MCR compartment will have a smoke detection system, a fire suppression system, and an oxygen system.

The LD-MCR compartment will be accessed from the main deck via a "stairhouse." The floor within the stairhouse has a hatch that leads to stairs which occupants use to descend into the LD-MCR compartment. An interface will keep this hatch open when the stairhouse door is open. In addition, there will be an emergency hatch which opens directly into the main passenger cabin. The LD-MCR compartment has a maintenance door. This door is intended to be used to allow maintenance personnel and cargo handlers to enter the LD-MCR from the cargo compartment when the airplane is not in flight.

Type Certification Basis

Under the provisions of § 21.101, Airbus must show that Airbus Model A330, A340-200, and A340-300 series airplanes, as changed, continue to meet (1) the applicable provisions of the regulations incorporated by reference in A46NM (for Airbus Model A330) and in A43NM (for Airbus Model A340-200 and A340-300 series airplanes) or (2) 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 A46NM and A43NM are as follows:

The certification basis for Airbus Models A330-300, A340-200, and A340-300 series airplanes is 14 CFR part 25, as amended by Amendments 25-1 through 25-63; certain regulations at later Amendments 25-65, 25-66, and 25-77; and Amendment 25-64 with exceptions. Refer to Type Certificate Data Sheet (TCDS) A46NM or A43NM, as applicable, for a complete description of the certification basis for these models, including certain special conditions that are not relevant to these proposed special conditions.

The certification basis for Airbus Model A330-200 series airplanes is 14 CFR part 25, as amended by Amendments 25-1 through 25-63, 25-65, 25-66, 25-68, 25-69, 25-73, 25-75, 25-77, 25-78, 25-81, 25-82, 25-84 and 25-85; certain regulations at

Amendments 25-72 and 25-74; and Amendment 25-64 with exceptions. Refer to TCDS A46NM for a complete description of the certification basis for that model, including certain special conditions that are not relevant to these proposed special conditions.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, 14 CFR part 25) do not contain adequate or appropriate safety standards for Airbus Model A330, A340-200, and A340-300 series airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, Airbus Model A330, A340-200, and A340-300 series airplanes 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.

Special conditions, as defined in § 11.19, are issued in accordance with § 11.38 and become part of the type certification basis in accordance with § 21.101.

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, or should any other model already included on the same type certificate be modified to incorporate the same or similar novel or unusual design feature, the special conditions would also apply to the other model under the provisions of § 21.101.

Novel or Unusual Design Features

While the installation of a crew rest compartment is not a new concept for large transport category airplanes, each crew rest compartment has unique features based on design, location, and use on the airplane. The LD-MCR compartment is novel in terms of part 25 in that it will be located below the passenger cabin floor in the aft cargo compartment of Airbus Model A330, A340-200, and A340-300 series airplanes. Due to the novel or unusual features associated with the installation of a LD-MCR compartment, special conditions are considered necessary to provide a level of safety equal to that established by the airworthiness regulations incorporated by reference in the type certificates of these airplanes. These special conditions do not negate the need to address other applicable part 25 regulations.