

*The engine and ATTCS failed time interval must be no shorter than the time interval from the point of simultaneous engine and ATTCS failure to a height of 400 feet used to comply with I25.2(b) for ATTCS use during takeoff.

Issued in Renton, Washington, on November 22, 1999.

Donald L. Riffin,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service, ANM-100.

[FR Doc. 99-31396 Filed 12-2-99; 8:45 am]

BILLING CODE 4910-13-P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM160, Special Conditions No. 25-153-SC]

Special Conditions: Dassault Aviation Falcon Model 20-C5/-D5/-E5/-F5 Airplanes; High Intensity Radiated Fields (HIRF)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for the Dassault Aviation Falcon Model 20-C5/-D5/-E5/-F5 airplanes, as modified by Garrett Aviation Services. The Model 20-C5/-D5/-E5/-F5 airplanes are equipped with a high-technology digital avionics system that performs critical functions. The applicable regulations do not contain adequate or appropriate safety standards for the protection of this system from the effects of high-intensity radiated fields (HIRF). These special conditions provide the additional safety standards that the Administrator considers necessary to ensure that the critical functions that this system performs are maintained when the airplane is exposed to HIRF.

EFFECTIVE DATE: January 3, 2000.

FOR FURTHER INFORMATION CONTACT:

Connie Beane, FAA, Transport Airplane Directorate, Aircraft Certification Service, Standardization Branch, ANM-113, 1601 Lind Avenue SW., Renton, Washington, 98055-4056; telephone (425) 227-2796; facsimile (425) 227-1149.

SUPPLEMENTARY INFORMATION:

Background

On November 8, 1998, Garrett Aviation Services applied for a supplemental type certificate (STC) to modify Dassault Aviation Falcon Model 20-C5/-D5/-E5/-F5 airplanes listed on Type Certificate A7EU.

The Model 20-C5/-D5/-E5/-F5 series of low wing airplanes are pressurized airplanes with twin, Garrett TRE731-5AR turboprops that are configured for 8-10 passengers and a crew of 2. The airplane has a maximum takeoff weight of 29,000 pounds, a maximum landing weight of 27,734 pounds, and a range of 1600 nautical miles. The overall length of the Falcon Model 20-C5/-D5/-E5/-F5 airplanes is 56 feet 3 inches, and the wing span is 53 feet, 6 inches.

The modification incorporates the installation of flat panel displays for display of critical flight parameters (altitude, airspeed, and attitude) to the crew. These displays can be susceptible to disruption to both command/response signals as a result of electrical and magnetic interference. This disruption of signals could result in loss of all critical flight displays and annunciations or present misleading information to the pilot.

Type Certification Basis

Under the provisions of 14 CFR 21.101, Garrett Aviation Services must show that the Dassault Aviation Falcon Model 20-C5/-D5/-E5/-F5 airplanes, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A7EU, 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. A7EU are as follows:

The certification basis for the modified Dassault Aviation Falcon Model 20-C5/-D5/-E5/-F5 airplanes includes Civil Air Regulations (CAR) 4b, effective December 31, 1953, Amendments 4b-1 through 4b-12, Special Regulation SR422B, and provisions of FAR amendment 25-4 in lieu of CAR 4b.350(e) and (f).

If the Administrator finds that the applicable airworthiness regulations (i.e., CAR 4b, as amended) do not contain adequate or appropriate safety standards for the Dassault Aviation Falcon Model 20-C5/-D5/-E5/-F5 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, the Model 20-C5/-D5/-E5/-F5 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 appropriate, are issued in accordance with 14 CFR 11.49, as required by §§ 11.28 and 11.29(b), and become part of the type certification basis in accordance with § 21.101(b)(2).

Special conditions are initially applicable to the model for which they are issued. Should Garrett Aviation Services apply for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same novel or unusual design feature, the special conditions would also apply to the other model under the provisions of § 21.101(a)(1).

Novel or Unusual Design Features

The modified Dassault Aviation Falcon Model 20-C5/-D5/-E5/-F5 airplanes will incorporate the following new design feature: a new electronic flat panel display system, which was not available at the time of certification of these airplanes, that performs critical functions. This system may be vulnerable to HIRF external to the airplane.

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 electrical and electronic 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 Aviation Falcon Model 20-C5/-D5/-E5/-F5 airplanes, which require that new electrical and electronic systems that perform critical functions, such as the flat panel displays for display of critical flight parameters (altitude, airspeed, and attitude) to the crew, 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, plus the advent of space and satellite communications coupled with electronic command and control of the airplane, the immunity of critical digital avionics 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 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 following field strengths for the frequency ranges indicated.

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
2 GHz–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 root-mean-square (rms) values.

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 Dassault Aviation Falcon Model 20–C5/–D5/–E5/–F5 airplanes modified by Garrett Aviation Services. Should Garrett Aviation Services 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 novel or unusual design feature, these special conditions would apply to that model as well under the provisions of § 21.101(a)(1).

Discussion of Comments

Notice of proposed special conditions No. 25–99–07–SC was published in the **Federal Register** on August 12, 1999 (64 FR 43946). No comments were received.

Conclusion

This action affects only certain novel or unusual design features on Dassault Aviation Falcon Model 20–C5/–D5/–E5/–F5 airplanes modified by Garrett Aviation Services. It is not a rule of general applicability, and it affects only

the applicant who applied to the FAA for approval of these features on the airplane.

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 Dassault Aviation Falcon Model 20–C5/–D5/–E5/–F5 airplanes modified by Garrett Aviation Services.

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 November 17, 1999.

Donald L. Riggins,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service, ANM-100.

[FR Doc. 99–31395 Filed 12–2–99; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 99–ANE–18–AD; Amendment 39–11448; AD 99–25–05]

RIN 2120–AA64

Airworthiness Directives; Hartzell Propeller, Inc. Model HD–E6C–3() Propellers

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment adopts a new airworthiness directive (AD) that is applicable to Hartzell Propeller, Inc.,