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DEPARTMENT OF TRANSPORTATION

Federation Aviation Administration

14 CFR Part 25

[Docket No. NM-126; Special Conditions No. 25-ANM-16]

Special Conditions: Dassault Aviation, Mystere Falcon 50 Airplane; High-Intensity Radiated Fields

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Dassault Aviation, Mystere Falcon 50 airplane modified by Garrett Aviation Services of Springfield, Illinois. This airplane will be equipped with a Collins EFIS-86C(14) Electronic Flight Instrument System that provides critical data to the flightcrew. The applicable regulations do not contain adequate or appropriate safety standards for the position of these systems from the effects of high-intensity radiated fields. 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.

DATES: The effective date of these special conditions is May 21, 1996. Comments must be received on or before July 15, 1996.

ADDRESSES: Comments on these final special conditions, request for comments, may be mailed in duplicate to: Federal Aviation Administration, Office of the Assistant Chief Counsel, Attn: Rules Docket (ANM-7), Docket No. NM-126, 1601 Lind Avenue SW., Renton, Washington, 98055-4056; or delivered in duplicate to the Office of the Assistant Chief Counsel at the above address. Comments must be marked: Docket No. NM-126. Comments may be

inspected in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4:00 p.m.

FOR FURTHER INFORMATION CONTACT: Connie Beane, FAA, Standardization Branch, ANM-113, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98055-4056; telephone (206) 227-2796; facsimile (206) 227-1149.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA has determined that good cause exists for making these special conditions effective upon issuance; however, interested persons are invited to submit such written data, views, or arguments as they may desire. Communications should identify the regulatory docket and special conditions number and be submitted in duplicate to the address specified above. All communications received on or before the closing date for comments will be considered by the Administrator. These special conditions may be changed in light of comments received. All comments submitted will be available in the Rules Docket for examination by interested persons, both before and after the closing date for comments. A report summarizing each substantive public contact with FAA personnel concerning this rulemaking will be filed in the docket. Persons wishing the FAA to acknowledge receipt of their comments submitted in response to this request must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. NM-126." The postcard will be date stamped and returned to the commenter.

Background

On March 7, 1996, Garrett Aviation Services of Springfield, Illinois, applied for a supplemental type certificate to modify Dassault Aviation, Mystere Falcon 50 airplanes. The Dassault Aviation, Mystere Falcon 50 is a business jet with three aft mounted turbine engines. The airplane can carry three crew and 19 passengers depending on the configuration, and is capable of operating to an altitude of 49,000 feet. The proposed modification incorporates the installation of a Collins EFIS-86C(14) Electronic Flight Instrument System (EFIS)), which is potentially

vulnerable to high-intensity radiated fields (HIRF) external to the airplane.

Supplemental Type Certification Basis

Under the provisions of § 21.101 of the Federal Aviation Regulations (FAR), Garrett Aviation Services must show that the altered Dassault Aviation, Mystere Falcon 50 airplane continues to meet the applicable provisions of § 21.29; and part 25, effective February 1, 1965, as amended by Amendments 25-1 through 25-34 and § 25.255 of Amendments 25-42; § 25.979(d) and (e) of Amendments 25-38; § 25.1013(b)(1) of Amendments 25-36; § 25.1351(d) of Amendments 25-41; § 25.1353(c)(6) of Amendments 25-42; part 36 of the FAR effective December 1, 1969, as amended through Amendment 36-9; Special Federal Aviation Regulations (SFAR) 27 effective February 1, 1974, as amended through Amendment SFAR 27-1; and Special Conditions 25-86-EU-24. In addition, the certification basis may include other special conditions that are not relevant to these special conditions.

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 Dassault Aviation, Mystere Falcon 50 airplane because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16 to establish a level of safety equivalent to that established in the regulations.

Special conditions, as appropriate, are issued in accordance with § 11.49 of the FAR after public notice, as required by §§ 11.28 and 11.29, and become part of the type certification basis in accordance with § 21.17(a)(2).

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 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 Dassault Aviation, Mystere Falcon 50 airplane incorporates a Collins EFIS-86C(14) system that provides critical data to the flightcrew. 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 issued for the Dassault Aviation, Mystere Falcon 50, which would require that new technology electrical and electronic systems, such as the EFIS, etc., 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 paragraphs 1 or 2 below:

1. A minimum threat of 100 volts per meter peak 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	Peak (V/M)	Average (V/M)
10 KHz–100 KHz	50	50
100 KHz–500 KHz	60	60
500 KHz–2000 KHz	70	70
2 MHz–30 MHz	200	200
30 MHz–100 MHz	30	30
100 MHz–200 MHz	150	33
200 MHz–400 MHz	70	70

Frequency	Peak (V/M)	Average (V/M)
400 MHz–700 MHz	4,020	935
700 MHz–1000 MHz	1,700	170
1 GHz–2 GHz	5,000	990
2 GHz–4 GHz	6,680	840
4 GHz–6 GHz	6,850	310
6 GHz–8 GHz	3,600	670
8 GHz–12 GHz	3,500	1,270
12 GHz–18 GHz	3,500	360
18 GHz–40 GHz	2,100	750

As discussed above, these special conditions would be applicable initially to the Garrett Aviation Services modified Dassault Aviation, Mystere Falcon 50. Should Garrett Aviation Services apply at a later date for a change to the supplemental type certificate to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well under the provisions of § 21.101(a)(1).

Conclusion

This action affects only certain design features on the Dassault Aviation, Mystere Falcon 50 airplane. It is not a rule of general applicability and affects only the manufacturer who applied to the FAA for approval of these features on the airplane.

The substance of these 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. It is unlikely that prior public comment would result in a significant change from the substance contained herein. For this reason, and 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. Therefore, these special conditions are being made 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 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, the following special conditions are issued as part of the supplemental type certification basis for the Garrett Aviation Services modified Dassault Aviation, Mystere Falcon 50 series airplanes.

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 May 21, 1996.

Norman B. Martenson,

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

[FR Doc. 96-13426 Filed 5-28-96; 8:45 am]

BILLING CODE 4910-13-M

14 CFR Part 39

[Docket No. 96-NM-94-AD; Amendment 39-9635; AD 96-11-10]

RIN 2120-AA64

Airworthiness Directives; Israel Aircraft Industries (IAI), Ltd., Model 1125 Westwind Astra Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment adopts a new airworthiness directive (AD) that is applicable to certain IAI, Ltd., Model 1125 Westwind Astra series airplanes. This action requires a visual inspection for clearance between the hydraulic lines/vacuum lines and the electrical wire bundles, and repair or replacement of damaged lines or wire bundles with serviceable parts. This AD also requires installation of neoprene hose around the affected hydraulic lines and vacuum lines. This amendment is prompted by a report indicating that chafing was found on a hydraulic line. The actions specified in this AD are intended to prevent such chafing, which could