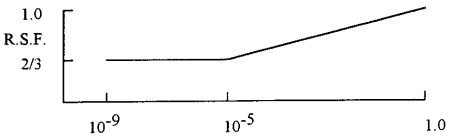
subparagraph (2)(i) of this paragraph. However, the residual strength level must not be less than the 1-g flight load, combined with the loads introduced by the failure condition, plus two-thirds of the load increments of the conditions specified in subparagraph (2)(i) of this paragraph, applied in both positive and negative directions (if appropriate). The residual strength factor (R.S.F.) is defined in Figure 3.

Figure 3
Residual Strength Factor



Q_j—Probability of being in failure condition j

$Q_j=(T_j)(P_j)$ where:

T_j=Average time spent in failure condition j (in hours)

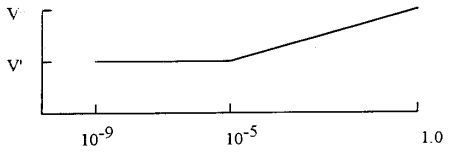
P_j=Probability of occurrence of failure mode j (per hour)

Note: If P_j is greater than 10^{-3} per flight hour, then a residual strength factor of 1.0 must be used.

(iv) If the loads induced by the failure condition have a significant effect on fatigue or damage tolerance, then their effects must be taken into account.

(v) Freedom from flutter, divergence, and control reversal must be shown up to a speed determined from Figure 4. Flutter clearance speeds V′ and V″ may be based on the speed limitation specified for the remainder of the flight, using the margins defined by § 25.629(b).

Figure 4
Clearance Speed



Q_j=Probability of being in failure condition j

V′=Clearance speed as defined by § 25.629(b)(2).

V″=Clearance speed as defined by § 25.629(b)(1).

$Q_j=(T_j)(P_j)$ where:

T_j=Average time spent in failure condition j (in hours)

P_j=Probability of occurrence of failure mode j (per hour)

Note: If P_j is greater than 10^{-3} per flight hour, then the flutter clearance speed must not be less than V″.

(vi) Freedom from flutter, divergence, and control reversal must also be shown up to V′ in Figure 4 above, for any probable system failure condition combined with any damage required or selected for investigation by § 25.571(b).

(vii) If the mission analysis method is used to account for continuous turbulence, all the systems failure conditions associated with their probability must be accounted for in a rational or conservative manner in order to ensure that the probability of exceeding the limit load is not higher than the value prescribed in Appendix G of 14 CFR part 25.

(3) Consideration of certain failure conditions may be required by other sections of 14 CFR part 25, regardless of calculated system reliability. Where analysis shows the probability of these failure conditions to be less than 10^{-9}, criteria other than those specified in this paragraph may be used for structural substantiation to show continued safe flight and landing.

(d) Warning considerations. For upper rudder control system failure detection and warning, the following apply:

(1) The system must be checked for failure conditions, not extremely improbable, that degrade the structural capability below the level required by part 25 or significantly reduce the reliability of the remaining system. The crew must be made aware of these failures before flight. Certain elements of the control system, such as mechanical and hydraulic components, may use special periodic inspections, and electronic components may use daily checks, in lieu of warning systems, to achieve the objective of this requirement. These certification maintenance requirements must be limited to components that are not readily detectable by normal warning systems and where service history shows that inspections will provide an adequate level of safety.

(2) The existence of any failure condition, not extremely improbable, during flight that could significantly affect the structural capability of the airplane, and for which the associated reduction in airworthiness can be minimized by suitable flight limitations, must be signaled to the flight crew. For example, failure conditions which result in a factor of safety between the airplane strength and the loads of 14 CFR part 25, Subpart C, below 1.25, or flutter margins below V″, must be signaled to the crew during the flight.

(3) Dispatch with known failure conditions. If the airplane is to be dispatched in a known upper rudder control system failure condition that affects structural performance, or affects the reliability of the remaining system to maintain structural performance, then the provisions of this special condition must be met for the dispatched condition and for subsequent failures. Operational and flight limitations may be taken into account.

Issued in Renton, Washington, on May 1, 1996.

Darrell M. Pederson,

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

[FR Doc. 96–2086 Filed 5–13–96; 8:45 am]

BILLING CODE 4910–13–M

14 CFR part 25

[Docket No. NM–124; Special Conditions No. 25–ANM–114]

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 K–C Aviation of Appleton, Wisconsin. This airplane will be equipped with a Flight Visions FV–2000 Head-up Display System that provides critical data to the flightcrew. The applicable regulations do not contain adequate or appropriate safety standards for the protection 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 3, 1996. Comments must be received on or before June 28, 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–124, 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–124. 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: Dale Dunford, FAA, Flight Test and Systems Branch, ANM–111, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98055–4056; telephone (206) 227–2239; facsimile (206) 227–1100.

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 be submitted with those comments a self-addressed, stamped postcard on which the following statement is made: ''Comments to Docket No. NM–124.'' The postcard will be date stamped and returned to the commenter.

Background

On June 27, 1995, K–C Aviation of Appleton, Wisconsin, 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 digital avionics system that will present critical functions on the Head-up Display System (HUD), which are potentially vulnerable to a 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), K–C Aviation 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 Amendment 25–42; § 25.979 (d) and (e) of Amendment 25–38; § 25.1013(b)(1) of Amendment 25–36; § 25.1351(d) of Amendment 25–41; § 25.1353(c)(6) of Amendment 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 proposed 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 provision of § 21.101(a)(1).

Novel or Unusual Design Features

The Dassault Aviation, Mystere Falcon 50 airplane incorporates a Flight Visions FV–200 Head-up Display system that provides critical data to the flightcrew. These systems 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 proposed for the Dassault Aviation, Mystere Falcon 50, which would require that new technology electrical and electronic systems, such as the HUD, 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
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, the proposed special conditions would be applicable initially to the K–C Aviation modified Dassault Aviation, Mystere Falcon 50. Should K–C Aviation 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 citiation for these special conditions is as follows

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

According, the following special conditions are issued as part of the supplemental type certification basis for the K–C Aviation 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 3, 1996.

Stewart R. Miller,

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

[FR Doc. 96–12085 Filed 5–13–96; 8:45 am]

BILLING CODE 4910–13–M

14 CFR Part 39

[Docket No. 95–NM–127–AD; Amendment 39–9614; AD 92–10–13 R1]

RIN 2120–AA64

Airworthiness Directives; McDonnell Douglas Model DC–9–80 Series Airplanes and Model MD–88 Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment revises an existing airworthiness directive (AD), applicable to certain McDonnell Douglas Model DC–9–80 series airplanes and Model MD–88 airplanes, that currently requires a revision to the FAA-approved Airplane Flight Manual (AFM) to specify that the autothrottles must be disconnected if engine surge (stall) is detected during takeoff. That AD was prompted by results of an accident investigation, which revealed that the digital flight guidance computer (DFGC) on these airplanes can incorrectly identify an engine surge or stall as being an engine failure. This can cause the autothrottles to unclamp and automatically advance the thrust levers during takeoff. The actions specified by that AD are intended to prevent automatic advance of the thrust lever on a surging engine during takeoff, which could cause engine failure. This amendment provides for an optional terminating action for the AFM revision.

DATES: Effective June 13, 1996.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of June 13, 1996.

ADDRESSES: The service information referenced in this AD may be obtained from McDonnell Douglas Corporation, 3855 Lakewood Boulevard, Long Beach, California 90846, Attention: Technical Publications Business Administration, Department C1–L51 (2–60). This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Robert Baitoo, Aerospace Engineer, Propulsion Branch, ANM–140L, FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood,