Issued in Fort Worth, Texas, on August 13, 1996.

Michele M. Owsley,

Acting Manager, Rotorcraft Directorate, Aircraft Certification Service.

[FR Doc. 96–21714 Filed 8–23–96; 8:45 am]

BILLING CODE 4910–13–M

14 CFR Part 29

[Docket No. 96–ASW–4; Special Condition 29–ASW–18]

Special Condition: Eurocopter Deutschland Model MBB–BK 117 A–1, A–3, A–4, B–1, B–2, and C–1 Helicopters, Electronic Flight Instrument System

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final special condition; request for comments.

SUMMARY: This special condition is issued for the Eurocopter Deutschland Models MBB–BK 117 A–1, A–3, A–4, B–1, B–2, and C–1 helicopters. These helicopters will have a novel or unusual design feature associated with the Electronic Flight Instrument System. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for the protection of these critical function systems from the effects of external high intensity radiated fields (HIRF). This special condition contains additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that provided by the applicable airworthiness standards.

DATES: Effective August 26, 1996. Comments must be received on or before October 25, 1996.

ADDRESSES: Comments may be mailed in duplicate to: Federal Aviation Administration (FAA), Office of the Assistant Chief Counsel, Attn: Rules Docket No. 96–ASW–4, Fort Worth, Texas 76193–0007, or delivered in duplicate to the Office of the Assistant Chief Counsel, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137. Comments must be marked Docket No. 96–ASW–4. Comments may be inspected in the Rules Docket weekdays, except Federal holidays, between 9 a.m. and 3 p.m.

FOR FURTHER INFORMATION CONTACT: Mr. Robert McCallister, FAA, Rotorcraft Directorate, Rotorcraft Standards Staff, Fort Worth, Texas 76193–0110; telephone (817) 222–5121.

SUPPLEMENTARY INFORMATION: The FAA has determined that notice and opportunity for prior public comment hereon are impracticable because these procedures would significantly delay issuance of the approval design and thus delay delivery of the affected helicopter. These notice and comment procedures are also considered unnecessary since the public has been previously provided with a substantial number of opportunities to comment on substantially identical special conditions, and their comments have been fully considered. Therefore, good cause exists for making this special condition effective upon issuance.

Comments Invited

Although this final special condition was not subject to notice and opportunity for prior public comment, comments are invited on this final special condition. Interested persons are invited to comment on this final special condition by submitting such written data, views, or arguments as they may desire. Communications should identify the regulatory docket number and be submitted in duplicate to the address specified under the caption **ADDRESSES**. All communications received on or before the closing date for comments will be considered. This special condition may be changed in light of comments received. All comments received 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 special condition must submit with those comments a self-addressed, stamped postcard on which the following statement is made: ''Comments to Docket No. 96–ASW–4.'' The postcard will be date and time stamped and returned to the commenter.

Background

On May 9, 1996, American Eurocopter Corporation, Grand Prairie, Texas, notified the FAA that they intended to issue a Supplemental Type Certificate under their Designated Alteration Station Authorization for installation of an Electronic Flight Instrument System in Eurocopter Deutschland Models MBB–BK 117 A–1, A–3, A–4, B–1, B–2, and C–1 helicopters. These are 7 (10 with approved kit) passenger, twin engine, 7,385 pound transport category helicopters.

Type Certification Basis

The certification basis established for the Eurocopter Deutschland Models MBB–BK 117 A–1, A–3, A–4, B–1, B–2, and C–1 helicopters includes: 14 CFR 21.29 and 14 CFR part 29 (part 29) effective February 1, 1965, Amendments 29–1 through 29–16. In addition, the certification basis includes the Airworthiness Criteria for helicopter instrument flight rules (IFR) certification dated December 15, 1978. Also, the certification basis includes Equivalent Safety Findings for Models A–1 and A–3, §§ 29.811(h)(1), 29.921, 29.1151, 29.1121(c), and 29.1203(a); for Models A–3 and A–4, §§ 29.401(a), 29.865(b)(2), 29.923(a)(3)(ii) and (c)(2); for Models B–2 and C–1, §§ 29.175(b), 29.811(h)(i), and 29.1151(b).

If the Administrator finds that the applicable airworthiness regulations do not contain adequate or appropriate safety standards for this helicopter because of a novel or unusual design feature, special conditions are prescribed under the provisions of 14 CFR 21.16 to establish a level of safety equivalent to that established in the regulations.

Special conditions, as appropriate, are issued in accordance with 14 CFR 11.49 and become part of the type certification basis in accordance with 14 CFR 21.101(b)(2). Provision is made for the public comment period in 14 CFR 11.28. Special conditions are initially applicable to the model for which they are issued. Should the applicant 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).

Discussion

The Eurocopter Deutschland Models MBB–BK 117 A–1, A–3, A–4, B–1, B–2, and C–1 helicopters, at the time of application, were identified as having modifications that incorporate one and possibly more electrical, electronic, or combination of electrical and electronic (electrical/electronic) systems that will perform functions critical to the continued safe flight and landing of the helicopters. The electronic flight instrument system performs the attitude display function. The display of attitude, altitude, and airspeed is critical to the continued safe flight and landing of the helicopters for IFR operations in instrument meteorological conditions. Eurocopter Deutschland will provide the FAA with a hazard analysis that will identify any other critical functions performed by the electrical/electronic systems that are critical to the continued safe flight and landing of the helicopters.

Recent advances in technology have prompted the design of aircraft that include advanced electrical and electronic systems that perform functions required for continued safe flight and landing. However, these advanced systems respond to the transient effects of induced electrical current and voltage caused by the high intensity radiated fields (HIRF) incident on the external surface of the helicopters. These induced transient currents and voltages can degrade the performance of the electrical/electronic systems by damaging the components or by upsetting the systems' functions.

Furthermore, the electromagnetic environment has undergone a transformation not envisioned by the current application of § 29.1309(a). Higher than anticipated energy levels radiate from operational transmitters currently used for radar, radio, and television; and the number of transmitters has increased significantly.

Existing aircraft certification requirements are inappropriate in view of these technological advances. In addition, the FAA has received reports of some significant safety incidents and accidents involving military aircraft equipped with advanced electrical/electronic systems when they were exposed to electromagnetic radiation.

The combined effects of technological advances in helicopter design and the changing environment have resulted in an increased level of vulnerability of the electrical and electronic systems required for the continued safe flight and landing of the helicopters. Effective measures to protect these helicopters against the adverse effects of exposure to HIRF will be provded by the design and installation of these systems. The following primary factors contributed to the current conditions: (1) increased use of sensitive electronics that perform critical functions, (2) reduced electromagnetic shielding afforded helicopter systems by advanced technology airframe materials, (3) adverse service experience of military aircraft using these technologies, and (4) an increase in the number and power of radio frequency emitters and the expected increase in the future.

The FAA recognizes the need for aircraft certification standards to keep pace with technological developments and a changing environment and in 1986 initiated a high priority program to (1) determine and define electromagnetic energy levels; (2) develop guidance material for design, test, and analysis; and (3) prescribe and promulgate regulatory standards.

The FAA participated with industry and airworthiness authorities of other countries to develop internationally recognized standards for certification.

The FAA and airworthiness authorities of other countries have identified a level of HIRF environment that a helicopter could be exposed to during IFR operations. While the HIRF requirements are being finalized, the FAA is adopting a special condition for the certification of aircraft that employ electrical/electronic systems that perform critical functions. The accepted maximum energy levels that civilian helicopter system installations must withstand for safe operation are based on surveys and analysis of existing radio frequency emitters. This special condition will require the helicopters' electrical/electronic systems and associated wiring to be protected from these energy levels. These external threat levels are believed to represent the worst-case exposure for a helicopter operating under IFR.

The HIRF environment specified in this special condition is based on many critical assumptions. With the exception of takeoff and landing at an airport, one of these assumptions is that the aircraft would be not less than 500 feet above ground level (AGL). Helicopters operating under visual flight rules (VFR) routinely operate at less than 500 feet AGL and perform takeoffs and landings at locations other than controlled airports. Therefore, it would be expected that the HIRF environment experienced by a helicopter operating VFR may exceed the defined environment by 100 percent or more.

This special condition will require the systems that perform critical functions, as installed in the aircraft to meet certain standards based on either a defined HIRF environment or a fixed value using laboratory tests.

The applicant may demonstrate that the operation capabilities of the installed electrical/electronic systems that perform critical functions are not adversely affected when the aircraft is exposed to the defined HIRF environment. The FAA has determined that the environment defined in Table 1 is acceptable for critical functions in helicopters operating at or above 500 feet AGL. For critical functions of helicopters operating at less than 500 feet AGL, additional factors must be considered.

The applicant may also demonstrate by a laboratory test that the electrical/electronic systems that perform critical functions can withstand a peak electromagnetic field strength in a frequency range of 10 KHz to 18 GHz. If a laboratory test is used to show compliance with the defined HIRF environment, no credit will be given for signal attenuation due to installation. A level of 100 volts per meter (v/m) and other considerations, such as an alternate technology backup that is immune to HIRF, are appropriate for critical functions during IFR operations. A level of 200 v/m and further considerations, such as an alternate technology backup that is immune to HIRF, are more appropriate for critical functions during VFR operations. Applicants must perform a preliminary hazard analysis to identify electrical/electronic systems that perform critical functions. The term ''critical'' means those functions whose failure would contribute to or cause a failure condition that would prevent the continued safe flight and landing of the helicopter. The systems identified by the hazard analysis as performing critical functions are required to have HIRF protection.

A system may perform both critical and noncritical functions. Primary electronic flight display systems and their associate components perform critical functions such as attitude, altitude, and airspeed indications. HIRF requirements would apply only to the systems that perform critical functions.

Compliance with HIRF requirements will be demonstrated by tests, analysis, models, similarity with existing systems, or a combination of these methods. The two basic options of either testing the rotorcraft to the defined environment or laboratory testing may not be combined. The laboratory test allows some frequency areas to be under tested and requires other areas to have some safety margin when compared to the defined environment. The areas required to have some safety margin are those shown, by past testing, to exhibit greater susceptibility to adverse effects from HIRF; and laboratory tests, in general, do not accurately represent the aircraft installation. Service experience alone will not be acceptable since such experience in normal flight operations may not include an exposure to HIRF. Reliance on a system with similar design features for redundancy, as a means of protection against the effects of external HIRF, is generally insufficient because all elements of a redundant system are likely to be concurrently exposed to the radiated fields.

The modulation that represents the signal most likely to disrupt the operation of the system under test, based on its design characteristics, should be selected. For example, flight control systems may be susceptible to 3 Hz square wave modulation while the video signals for electronic display

systems may be susceptible to 400 Hz sinusoidal modulation. If the worst-case modulation is unknown or cannot be determined, default modulations may be used. Suggested default values are a 1 KHz sine wave with 80 percent depth of modulation in the frequency range from 10 KHz to 400 MHz and 1 KHz square wave with greater than 90 percent depth of modulation from 400 MHz to 18 GHz. For frequencies where the unmodulated signal would cause deviations from normal operation, several different modulating signals with various waveforms and frequencies should be applied.

Acceptable system performance would be attained by demonstrating that the critical function components of the system under consideration continue to perform their intended function during and after exposure to required electromagnetic fields. Deviations from system specifications may be acceptable but must be independently assessed by the FAA on a case-by-case basis.

TABLE 1.—FIELD STRENGTH VOLTS/METER

Frequency	Peak (V/M)	Average (V/M)
10–100 KHz	50	50
100–500	60	60
500–2000	70	70
2–30 MHz	200	200
30–100	30	30
100–200	150	33
200–400	70	70
400–700	4020	935
700–1000	1700	170
1–2 GHz	5000	990
2–4	6680	840
4–6	6850	310
6–8	3600	670
8–12	3500	1270
12–18	3500	360
18–40	2100	750

As discussed above, these special conditions are applicable to the Eurocopter Deutschland Model MBB–BK 117A–1, A–3, A–4, B–1, B–2, and C–1 helicopters. Should Eurocopter Deutschland apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate H13EU to incorporate 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 unusual or novel design features on six models of helicopters. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of these features on the affected helicopters.

The substance of this special condition for similar installations in a variety of helicopters has been subjected to the notice and comment procedure and has been finalized without substantive change. 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 helicopter, which is imminent, the FAA has determined that prior public notice and comment are unnecessary and impractical, and good cause exists for adopting this special condition immediately. Therefore, this special condition is 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 prior opportunities for comment.

List of Subjects in 14 CFR Part 29

Aircraft, Air transportation, Aviation safety, Rotorcraft, Safety.

The authority citation for this special condition are as follows:

Authority: 49 U.S.C. 1344, 1348(c), 1352, 1354(a), 1355, 1421 through 1431, 1502, 1651(b)(2); 42 U.S.C. 1857f–10, 4321 et seq.; E.O. 11514; 49 U.S.C. 106(g).

The Special Condition

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special condition is issued as part of the type certification basis for the Eurocopter Deutschland Models MBB–BK 117 A–1, A–3, A–4, B–1, B–2, and C–1 helicopters:

Protection for Electrical and Electronic Systems From High Intensity Radiated Fields

Each system that performs critical functions must be designed and installed to ensure that the operation and operational capabilities of these systems to perform critical functions are not adversely affected when the helicopter is exposed to high intensity radiated fields external to the helicopter.

Issued in Fort Worth, Texas, on August 13, 1996.

Michele M. Owsley,

Acting Manager, Rotorcraft Directorate, Aircraft Certification Service.

[FR Doc. 96–21715 Filed 8–23–96; 8:45 am]

BILLING CODE 4910–13–M

14 CFR Part 39

[Docket No. 95–NM–263–AD; Amendment 39–9724; AD 96–17–14]

RIN 2120–AA64

Airworthiness Directives; Airbus Model A300 B2 and B4 Series Airplanes, Excluding Model A300–600 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to certain Airbus Model A300 B2 and B4 series airplanes, that currently requires repetitive visual inspections to detect cracks in the forward intermediate section skin at frame 30A where it joins stringer 30, and repair, if necessary. This amendment adds a requirement for eddy current inspection(s) to detect cracks of the outer skin of the fuselage; accomplishment of this inspection terminates the repetitive visual inspections. This amendment also requires repair of any cracked area and modification of the structure at certain frames. This amendment is prompted by in-service experience which has identified fatigue cracks in this area. The actions specified by this AD are intended to prevent fatigue cracking, which could result in rapid decompression of the airplane.

DATES: Effective September 30, 1996.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of September 30, 1996.

ADDRESSES: The service information referenced in this AD may be obtained from Airbus Industrie, 1 Rond Point Maurice Bellonte, 31707 Blagnac Cedex, France. 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 Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Tim Backman, Aerospace Engineer, Standardization Branch, ANM–113, FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington 98055–4056; telephone (206) 227–2797; fax (206) 227–1149.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD 90–11–09,