

Cirrus Design Corporation Model SR22 airplane. This airplane will have novel and unusual design features when compared to the state of technology envisaged in the applicable airworthiness standards. These novel and unusual design features include the installation of electronic flight instrument system (EFIS) displays Model 700-00006-XXX-() manufactured by Avidyne Corporation for which the applicable regulations do not contain adequate or appropriate airworthiness 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 the airworthiness standards applicable to these airplanes.

DATES: The effective date of these special conditions is January 24, 2003. Comments must be received on or before March 6, 2003.

ADDRESSES: Comments may be mailed in duplicate to: Federal Aviation Administration, Regional Counsel, ACE-7, Attention: Rules Docket Clerk, Docket No. CE194, Room 506, 901 Locust, Kansas City, Missouri 64106. All comments must be marked: Docket No. CE194. 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: Wes Ryan, Aerospace Engineer, Standards Office (ACE-110), Small Airplane Directorate, Aircraft Certification Service, Federal Aviation Administration, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone (816) 329-4127.

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 design approval and thus delivery of the affected aircraft. 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.

Comments Invited

Interested persons are invited to submit such written data, views, or arguments as they may desire. Communications should identify the regulatory docket or notice 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. The special conditions may be changed in light of the 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. Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must include a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. CE194." The postcard will be date stamped and returned to the commenter.

Background

On July 8, 2002, Cirrus Design Corporation, 4515 Taylor Circle, Duluth, Minnesota 55811, made an application to the FAA for a Type Design Change for the Cirrus Design Corporation Model SR22 airplane. The Model SR22 is currently approved under TC No. A00009CH. The proposed modification incorporates a novel or unusual design feature, such as digital avionics consisting of an EFIS, that is vulnerable to HIRF external to the airplane.

Type Certification Basis

Under the provisions of 14 CFR part 21, § 21.101, Cirrus Design Corporation must show that the Cirrus Design Corporation Model SR22 aircraft meets the following provisions, or the applicable regulations in effect on the date of application for the change to the Cirrus Design Corporation Model SR22: Part 23 of the Federal Aviation Regulations effective February 1, 1965, as amended by 23-1 through 23-53, except as follows: § 23.301 through Amendment 47; §§ 23.855, 23.1326, 23.1359, not applicable. 14 CFR 36 dated December 1, 1969, as amended by current amendment as of the date of type Certification.

Equivalent Levels of Safety finding (ACE-96-5) made per the provisions of 14 CFR part 23, § 23.221; Refer to FAA ELOS letter dated June 10, 1998 for models SR20, SR22. Equivalent Levels Of Safety finding (ACE-00-09) made per the provisions of 14 CFR part 23, §§ 23.1143(g) and 23.1147(b); Refer to FAA ELOS letter dated September 11, 2000 for model SR22.

Special Condition (23-ACE-88) for ballistic parachute; Refer to FAA letter

November 25, 1997 for models SR20, SR22.

Discussion

If the Administrator finds that the applicable airworthiness standards do not contain adequate or appropriate safety standards because of novel or unusual design features of an airplane, special conditions are prescribed under the provisions of § 21.16.

Special conditions, as appropriate, as defined in § 11.19, are issued in accordance with § 11.38 after public notice 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 the applicant apply for a supplemental type certificate to modify any other model already 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.

Novel or Unusual Design Features

Cirrus Design Corporation plans to incorporate certain novel and unusual design features into an airplane for which the airworthiness standards do not contain adequate or appropriate safety standards for protection from the effects of HIRF. These features include EFIS, which are susceptible to the HIRF environment, that were not envisaged by the existing regulations for this type of airplane.

Protection of Systems From High Intensity Radiated Fields (HIRF)

Recent advances in technology have given rise to the application in aircraft designs of advanced electrical and electronic systems that perform functions required for continued safe flight and landing. Due to the use of sensitive solid state advanced components in analog and digital electronics circuits, these advanced systems are readily responsive to the transient effects of induced electrical current and voltage caused by the HIRF. The HIRF can degrade electronic systems performance by damaging components or upsetting system functions.

Furthermore, the HIRF environment has undergone a transformation that was not foreseen when the current requirements were developed. Higher energy levels are radiated from transmitters that are used for radar, radio, and television. Also, the number of transmitters has increased significantly. There is also uncertainty concerning the effectiveness of airframe