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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 23

[Docket No. CE198, Special Condition 23-137-SC]

Special Conditions; Aero Vodochody Ae-270 Propjet; Protection of Systems for High Intensity Radiated Fields (HIRF)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Aero Vodochody Ae-270 Propjet 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 made by Chelton Flight Systems 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 September 16, 2003. Comments must be received on or before November 7, 2003.

ADDRESSES: Comments may be mailed in duplicate to: Federal Aviation Administration, Regional Counsel, ACE-7, Attention: Rules Docket Clerk, Docket No. CE198, Room 506, 901 Locust, Kansas City, Missouri 64106. All comments must be marked: Docket No.

CE198. 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 approval design 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. CE198." The postcard will be date stamped and returned to the commenter.

Background

On June 8, 1998, Aero Vodochody a.s. in the Czech Republic made application for a new Type Certificate for the Ae-

270 Propjet. This application date has been extended and revised to September 10, 2002. As part of the FAA validation process for issuance of a Type Certificate in the United States for foreign applicants, the FAA is issuing these special conditions to address special certification review items for novel and unusual features of the Ae-270 Propjet. The proposed type design incorporates a novel or unusual design feature, the Chelton Flight Systems Synthetic Vision System (SVS) Primary Flight Display (PFD), that is vulnerable to HIRF external to the airplane.

Type Certification Basis

Under the provisions of 14 CFR part 21, § 21.17, Aero Vodochody a.s. must show that the Ae-270 Propjet aircraft meets the following provisions, or the applicable regulations in effect on the date of application for the Ae-270 Propjet: 14 CFR part 23, Amendment 55, effective March 1, 2002; exemptions, if any; and the special conditions adopted by this rulemaking action.

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 § 21.17(a)(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

Aero Vodochody a.s. 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 shielding for HIRF. Furthermore, coupling to cockpit-installed equipment through the cockpit window apertures is undefined.

The combined effect of the technological advances in airplane design and the changing environment has resulted in an increased level of vulnerability of electrical and electronic systems required for the continued safe flight and landing of the airplane. Effective measures against the effects of exposure to HIRF must be provided by the design and installation of these systems. The accepted maximum energy levels in which civilian airplane system installations must be capable of operating safely are based on surveys and analysis of existing radio frequency

emitters. These special conditions require that the airplane be evaluated under these energy levels for the protection of the electronic system and its associated wiring harness. These external threat levels, which are lower than previous required values, are believed to represent the worst case to which an airplane would be exposed in the operating environment.

These special conditions require qualification of systems that perform critical functions, as installed in aircraft, to the defined HIRF environment in paragraph 1 or, as an option to a fixed value using laboratory tests, in paragraph 2, as follows:

(1) The applicant may demonstrate that the operation and operational capability of the installed electrical and electronic systems that perform critical functions are not adversely affected when the aircraft is exposed to the HIRF environment defined below:

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

Note: The field strengths are expressed in terms of peak root-mean-square (rms) values.

or,

(2) The applicant may demonstrate by a system test and analysis that the electrical and electronic systems that perform critical functions can withstand a minimum threat of 100 volts per meter, electrical field strength, from 10 kHz to 18 GHz. When using this test to show compliance with the HIRF requirements, no credit is given for signal attenuation due to installation.

A preliminary hazard analysis must be performed by the applicant, for approval by the FAA, to identify either electrical or 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

airplane. The systems identified by the hazard analysis that perform critical functions are candidates for the application of HIRF requirements. A system may perform both critical and non-critical functions. Primary electronic flight display systems, and their associated components, perform critical functions such as attitude, altitude, and airspeed indication. The HIRF requirements apply only to critical functions.

Compliance with HIRF requirements may be demonstrated by tests, analysis, models, similarity with existing systems, or any combination of these. Service experience alone is not acceptable since normal flight operations may not include an exposure to the HIRF environment. Reliance on a

system with similar design features for redundancy as a means of protection against the effects of external HIRF is generally insufficient since all elements of a redundant system are likely to be exposed to the fields concurrently.

Applicability

As discussed above, these special conditions are applicable to Aero Vodochody a.s. in the Czech Republic. Should Aero Vodochody a.s. apply at a later date for a supplemental type certificate to modify any other model on the same type certificate 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.

Conclusion

This action affects only certain novel or unusual design features on one model of airplane. 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 airplane.

The substance of these special conditions has been subjected to the notice and comment period 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 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 23

Aircraft, Aviation safety, Signs and symbols.

Citation

■ The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113 and 44701; 14 CFR 21.16 and § 21.17; and 14 CFR 11.38 and 11.19.

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 the Aero Vodochody Ae-270 Projekt airplane with the Chelton Flight Systems SVS PFD.

1. *Protection of Electrical and Electronic Systems from High Intensity Radiated Fields (HIRF).* Each system that performs critical functions must be designed and installed to ensure that the operations, and operational capabilities of these systems to perform critical functions, are not adversely affected when the airplane is exposed to high intensity radiated electromagnetic fields external to the airplane.

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 Kansas City, Missouri on September 16, 2003.

Michael Gallagher,

Manager, Small Airplane Directorate, Aircraft Certification Service.

[FR Doc. 03-25425 Filed 10-7-03; 8:45 am]

BILLING CODE 4910-13-P

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Part 71**

[Airspace Docket No. FAA-02-ANM-07]

Establishment of Class E Airspace at Afton Municipal Airport, Afton, WY

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; correction.

SUMMARY: This action deletes reference to the magnetic headings in the airspace description of the Class E airspace at Afton Municipal Airport, Afton, WY, that was published on July 31, 2003 (68 FR 44874), Airspace Docket 02-ANM-07.

EFFECTIVE DATE: 0901 UTC, October 30, 2003.

FOR FURTHER INFORMATION CONTACT: Ed Haeseker, ANM-520.7; telephone (425) 227-2527; Federal Aviation Administration, Docket No. 02-ANM-07, 1601 Lind Avenue SW., Renton, Washington 98055-4056.

SUPPLEMENTARY INFORMATION:

History: Airspace Docket 02-ANM-07 published on July 31, 2003 (68 FR 44874), established Class E Airspace at Afton Municipal Airport, Afton, WY, effective date of October 30, 2003. Magnetic as well as true heading were used to describe parameters of the Class E Airspace for Afton Municipal Airport, Afton, WY. This action only deletes references to the magnetic headings.

E Airspace; Airways; Routes; and Reporting Points [Amended]

Authority: 49 U.S.C. 106(g); 40103, 40113, 40120; E.O. 10854, 24 FR 9565.

Correction to Final Rule**§ 71.1 [Amended]**

■ The references to magnetic headings in the description of the Class E Airspace for Afton Municipal Airport, Afton, WY. Accordingly, pursuant to the authority delegated to me, as published in the **Federal Register** on July 31, 2003 (68 FR 44874) (Airspace Docket 02-ANM-07); page 44874, column 2, are corrected as follows:

* * * * *

ANM UT E5 Afton, WY (Corrected)

Afton Municipal Airport, WY
(Lat 42°42'41" N, long. 110°56'32" W)

That airspace extending upward from 700 feet above the surface of the earth within 6.5 mile radius of the Afton Municipal Airport, and within 2 miles either side of the 355° bearing from the airport extending from the 6.5 miles radius to 7.5 miles north of the airport, and within 2 miles either side of the 185° bearing from the airport extending from the 6.5 mile radius to 19.3 miles south of the airport.

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Issued in Seattle, Washington, on September 22, 2003.

ViAnne Fowler,

Acting Manager, Air Traffic Division, Northwest Mountain Region.

[FR Doc. 03-25427 Filed 10-7-03; 8:45 am]

BILLING CODE 4910-13-M

DEPARTMENT OF HOMELAND SECURITY**Coast Guard****33 CFR Part 100**

[CGD05-03-062]

RIN 1625-AA08

Special Local Regulations for Marine Events; Isle of Wight Bay, Ocean City, MD.

AGENCY: Coast Guard, DHS.

ACTION: Final rule.

SUMMARY: The Coast Guard is establishing permanent special local regulations for fireworks displays over the waters of Isle of Wight Bay, Ocean City, Maryland. These special local regulations are necessary to provide for the safety of life on navigable waters during the fireworks displays. This action is intended to restrict vessel traffic in portions of Isle of Wight Bay during the events.

DATES: This rule is effective November 7, 2003.

ADDRESSES: Comments and material received from the public, as well as documents indicated in this preamble as being available in the docket, are part of docket CGD05-03-062 and are available for inspection or copying at Commander (oax), Fifth Coast Guard District, 431 Crawford Street, Portsmouth, Virginia 23704-5004, between 9 a.m. and 2 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: S. L. Phillips, Project Manager, Auxiliary and Recreational Boating Safety Branch, at (757) 398-6204.

SUPPLEMENTARY INFORMATION: