

comment is impracticable because these procedures would significantly delay certification of the airplane and thus delivery of the affected airplane. The FAA therefore finds that good cause exists for making these special conditions effective upon issuance; however, the FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning these special conditions. The docket is available for public inspection before and after the comment closing date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this document between 7:30 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions based on comments we receive.

If you want the FAA to acknowledge receipt of your comments on these special conditions, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

### Background

On February 28, 2003, Midcoast Aviation, Inc., #14 Archview Drive, Cahokia, Illinois 62206, applied for a supplemental type certificate (STC) to modify the Raytheon HS.125 Series 700A and Series 700B airplanes approved under Type Certificate No. A3EU. The HS.125 Series 700A and Series 700B are low wing corporate jets with two Garrett AiResearch TFE-731 engines mounted on the aft fuselage. The airplane carries two crewmembers and up to 15 passengers. The maximum ramp weight varies between 24,800 Lbs. and 25,500 Lbs. depending on the fuel tanks installed. The airplane is approved to operate up to 41,000 feet altitude. The modification incorporates the installation of dual Rockwell Collins Air Data Computers (ADC-87A) and ALI-80A altimeters.

The dual Rockwell Collins ADCs and altimeters replace the existing altimetry system. This system uses electronics to

a far greater extent than the original altimetry system, and may be more susceptible to electrical and magnetic interference caused by high-intensity radiated fields (HIRF). The disruption of these signals could result in loss of altitude, or present misleading information to the pilot.

### Type Certification Basis

Under the provisions of 14 CFR 21.101, Amendment 21-69, effective September 16, 1991, Midcoast Aviation, Inc. must show that the Raytheon HS.125A Series 700A/B airplanes, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A3EU, or the applicable regulations in effect on the date of application for the change. (Subsequent changes have been made to § 21.101 as part of Amendment 21-77, but those changes do not become effective until June 10, 2003.) The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis." The certification basis for the modified Raytheon HS.125A Series 700A/B airplanes includes 14 CFR part 25 effective February 1, 1965, as amended by Amendments 25-1 through 25-20. Other applicable amendments, regulations, and special conditions are noted in Type Certificate Data Sheet A3EU.

If the Administrator finds that the applicable airworthiness regulations (part 25, as amended) do not contain adequate or appropriate safety standards for the Raytheon HS.125 Series 700A/B airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Raytheon HS.125 Series 700A/B airplanes must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of part 36.

Special conditions, as defined in 14 CFR 11.19, are issued in accordance with § 11.38, and become part of the type certification basis in accordance with § 21.101(b)(2), Amendment 21-69, effective September 16, 1991.

Special conditions are initially applicable to the model for which they are issued. Should Midcoast Aviation, Inc. apply at a later date for a supplemental type certificate to modify any other model already included on the same type certificate to incorporate the same or similar novel or unusual design feature, these special conditions

would also apply to the other model under the provisions of § 21.101(a)(1), Amendment 21-69, effective September 16, 1991.

### Novel or Unusual Design Features

The Raytheon HS.125A Series 700A/B airplanes modified by Midcoast Aviation, Inc. will incorporate the installation of dual Rockwell Collins Air Data Computers (ADC-87A) and ALI-80A altimeters. Because these advanced systems use electronics to a far greater extent than the original altimetry system, they may be more susceptible to electrical and magnetic interference caused by high-intensity radiated fields (HIRF) external to the airplane. The current airworthiness standards of part 25 do not contain adequate or appropriate safety standards for the protection of this equipment from the adverse effects of HIRF. Accordingly, these systems are considered to be a novel or unusual design feature.

### 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 avionics/electronics and electrical 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 needed for the Raytheon HS.125A Series 700A/B airplanes, modified by Midcoast Aviation, Inc. These special conditions require that the new dual Rockwell Collins Air Data Computers (ADC-87A) with ALI-80A altimeters, which perform critical functions, 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 and the advent of space and satellite communications, coupled with electronic command and control of the airplane, the immunity of critical avionics/electronics and electrical 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-