

certification under FAR Part 36, Amendment 36–10 for Model 58 S/N TH–1090 and after with applicable equivalent safety findings: CAR 3.387 for Model 58 and 58A (all serials). For Models 58 and 58A, S/N TH–1 through TH–1471, TH–1476, TH–1487, TH–1489, TH–1498 equipped per Beech Kit Dwg. 58–5012 or Models 58 and 58A, TH–1472 through TH–1475, TH–1477 through TH–1486, TH–1488, TH–1497, TH–1499 and after, equipped per Beech Dwg. 58–000059 or Beech Kit Dwg. 58–5012, compliance with ice protection has been demonstrated with FAR 23.775 of Amendment 23–7; 23.773, 23.929 and 23.1419 of Amendment 23–14; 23.1309 of Amendment 23–17; 23.1325, 23.1327, 23.1351, 23.1357 and 23.1547(e) of Amendment 23–20; 23.1416, 23.1559 and 23.1583(h) of Amendment 23–23 and 25.1323(e) of FAR 25 dated February 1, 1965.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, 14 CFR part 23) do not contain adequate or appropriate safety standards for the modified Model 58 Baron because of a novel or unusual design feature, 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, and become part of the certification basis for the supplemental 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 supplemental type certificate be amended in the future to include other models that are listed on the same type data sheet and incorporate the same novel or unusual design features, the special conditions would also apply under the provisions of § 21.101(a)(1).

#### **Novel or Unusual Design Features**

The Raytheon/Beech Model 58 Baron, modified by CenTex, Inc., will incorporate the following novel or unusual design features:

The Raytheon/Beech Model 58 Baron airplane modified by CenTex, Inc., will use an engine that includes an electronic control system with full authority digital engine control (FADEC) capability.

Many advanced electronic systems are prone to either upsets or damage, or both, at energy levels lower than analog systems. The increasing use of high power radio frequency emitters mandates requirements for improved high intensity radiated fields (HIRF) protection for electrical and electronic equipment. Since the electronic engine control system used on the modified

Raytheon/Beech Model 58 Baron will perform critical functions, provisions for protection from the effects of HIRF should be considered and, if necessary, incorporated into the airplane design data. The FAA policy contained in Notice 8110.71, dated April 2, 1998, establishes the HIRF energy levels that airplanes will be exposed to in service. The guidelines set forth in this Notice are the result of an Aircraft Certification Service review of existing policy on HIRF, in light of the ongoing work of the Aviation Rulemaking Advisory Committee (ARAC) Electromagnetic Effects Harmonization Working Group (EEHWG). The EEHWG adopted a set of HIRF environment levels in November 1997 that were agreed upon by the FAA, JAA, and industry participants. As a result, the HIRF environments in this notice reflect the environment levels recommended by this working group. This notice states that a FADEC is an example of a system that should address the HIRF environments.

Even though the control system will be certificated as part of the engine, the installation of an engine with an electronic control system requires evaluation due to the possible effects on or by other airplane systems (*e.g.*, radio interference with other airplane electronic systems, shared engine and airplane power sources). The regulatory requirements in 14 CFR part 23 for evaluating the installation of complex systems, including electronic systems, are contained in § 23.1309. However, when § 23.1309 was developed, the use of electronic control systems for engines was not envisioned; therefore, the § 23.1309 requirements were not applicable to systems certificated as part of the engine (reference § 23.1309(f)(1)). Also, electronic control systems often require inputs from airplane data and power sources and outputs to other airplane systems (*e.g.*, automated cockpit powerplant controls such as mixture setting). Although the parts of the system that are not certificated with the engine could be evaluated using the criteria of § 23.1309, the integral nature of systems such as these makes it unfeasible to evaluate the airplane portion of the system without including the engine portion of the system. However, § 23.1309(f)(1) again prevents complete evaluation of the installed airplane system since evaluation of the engine system's effects is not required.

Therefore, special conditions are proposed for the CenTex modified Raytheon/Beech Model 58 Baron airplane to provide HIRF protection and to evaluate the installation of the electronic engine control system for compliance with the requirements of

§ 23.1309(a) through (e) at Amendment 23–49.

#### **Applicability**

As discussed above, these special conditions are applicable to Model 58 Barons modified by CenTex, Inc. Should CenTex Aerospace apply at a later date to amend the supplemental type certificate to incorporate the same novel or unusual design features on another model listed on the same type certificate data sheet as the Model 58 Baron, the special conditions would apply to that model under the provisions of § 21.101.

#### **Conclusion**

This action affects only certain novel or unusual design features on one model, the Model 58 Baron, of airplane. It is not a rule of general applicability, and it affects only the applicant who applied to the FAA for approval of these features on the airplane.

Under standard practice, the effective date of final special conditions would be 30 days after the date of publication in the **Federal Register**. However the FAA finds that good cause exists to make these special conditions effective upon issuance.

#### **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 21.101; 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 supplemental type certification basis for Raytheon/Beech Model 58 Baron airplanes modified by CenTex, Inc.

1. High Intensity Radiated Fields (HIRF) Protection. In showing compliance with 14 CFR part 21 and the airworthiness requirements of 14 CFR part 23, protection against hazards caused by exposure to HIRF fields for the full authority digital engine control system, which performs critical functions, must be considered. To prevent this occurrence, the electronic engine control system must be designed and installed to ensure that the operation and operational capabilities of this critical system are not adversely affected when the airplane is exposed to high energy radio fields.

At this time, the FAA and other airworthiness authorities are unable to