

**DEPARTMENT OF TRANSPORTATION****Federal Aviation Administration****14 CFR Part 23**

[Docket No. CE287, Notice No. 23-08-04-SC]

**Special Conditions; Honda Aircraft Company, Model HA-420 HondaJet Airplane; Fire Extinguishing**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed special conditions.

**SUMMARY:** This notice proposes special conditions for the Honda Aircraft Company, Model HA-420 HondaJet Airplane. This new airplane will have novel and unusual design features not typically associated with normal, utility, acrobatic, and commuter category airplanes. These design features include turbofan engines and engine location, for which the applicable regulations do not contain adequate or appropriate airworthiness standards. These proposed special conditions contain the additional airworthiness standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

**DATES:** Comments must be received on or before July 25, 2008.

**ADDRESSES:** Comments on this proposal may be mailed in duplicate to: Federal Aviation Administration, Regional Counsel, ACE-7, Attention: Rules Docket Clerk, Docket No. CE287, Room 506, 901 Locust, Kansas City, Missouri 64106. All comments must be marked: Docket No. CE287. 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:** Leslie B. Taylor, Aerospace Engineer, Standards Office (ACE-110), Small Airplane Directorate, Aircraft Certification Service, Federal Aviation Administration, Room 301, 901 Locust Street, Kansas City, Missouri 64106; telephone (816) 329-4134, e-mail: [leslie.b.taylor@faa.gov](mailto:leslie.b.taylor@faa.gov).

**SUPPLEMENTARY INFORMATION:****Comments Invited**

Interested persons are invited to participate in the making of these special conditions by submitting 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 proposals described in this notice 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. Persons wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must include with those comments a self-addressed stamped postcard on which the following statement is made: "Comments to Docket No. CE287." The postcard will be date stamped and returned to the commenter.

**Background**

On October 11, 2006, Honda Aircraft Company; Greensboro, North Carolina, made an application to the FAA for a new Type Certificate for the Honda Model HA-420 HondaJet. The Honda Model HA-420 HondaJet is an all new very light jet, twin engine, high performance, low wing, aft overwing mounted turbofan engine powered aircraft in the Normal Category including flight into known icing conditions, Reduced Vertical Separation Minimum (RVSM) and single pilot operations. The Model HA-420 HondaJet design criteria includes: 9963 pounds maximum gross weight, estimated maximum speed of 258 KIAS/0.72 Mach, cruise speed of 420 KTAS at 30,000 feet, and a 43,000 foot maximum altitude.

Part 23 has historically addressed fire protection through prevention, identification, and containment. Prevention has been provided through minimizing the potential for ignition of flammable fluids and vapors. Identification has traditionally been provided by the location of the engines within the pilot's primary field of view and/or with the incorporation of fire detection systems. This philosophy has provided for both the rapid detection of a fire and confirmation when it has been extinguished. Containment has been provided through the isolation of designated fire zones through flammable fluid shutoff valves and firewalls. The containment philosophy also ensures that components of the engine control system will function effectively to permit a safe shutdown of the engine. However, containment has only been required to be demonstrated for 15 minutes. In the event of a fire in a traditional part 23 airplane, the

corrective action is to land as soon as possible. For a small, simple aircraft originally envisioned by part 23, it is possible to descend the aircraft to a suitable landing site within 15 minutes. Thus, if the fire is not extinguished, the occupants can safely exit the aircraft prior to the firewall being breached. These simple and traditional aircraft normally have the engine located away from critical flight control systems and primary structure. This has ensured that throughout the fire event the pilot can continue safe flight and control and has made predicting the effects of a fire relatively easy. Other design features of these simple and traditional aircraft, such as low stall speeds and short landing distances, ensure that even in the event of an off field landing the potential for a catastrophic outcome has been minimized.

While the certification basis for the Model HA-420 HondaJet does require that a fire detection system be installed due to the engine location, fire extinguishing is also considered a requirement. A sustained fire could result in loss of control of the airplane and damage to this primary structure before an emergency landing could be made.

**Type Certification Basis**

Under the provisions of 14 CFR, part 21, § 21.17, Honda Aircraft Company must show that the Model HA-420 HondaJet meets the applicable provisions of 14 CFR, part 23, effective February 1, 1965, as amended by Amendments 23-1 through Amendment 23-55, effective March 1, 2002; 14 CFR, part 36, effective December 1, 1969, through the amendment effective on the date of type certification; 14 CFR, part 34; exemptions, if any; and the special conditions adopted by this rulemaking action.

If the Administrator finds that the applicable airworthiness regulations (i.e., part 23) do not contain adequate or appropriate safety standards for the HondaJet because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

**Discussion**

Special conditions, as appropriate, as defined in § 11.19, are issued in accordance with § 11.38, and become part of the type certification basis in accordance with § 21.17.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates 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

The Honda Aircraft Company, Model HA-420 HondaJet will incorporate the following novel or unusual design features: Engines mounted on the top of the wings behind the pilot's field of view.

#### Engine Fire Extinguishing System

The Model HA-420 HondaJet design includes engines mounted on the top of the wings behind the pilot's field of view; therefore, early visual detection of engine fires is precluded. The applicable existing regulations do not require fire extinguishing systems for engines. Engine installations mounted behind the pilots field of view were not envisaged in the development of part 23; therefore, special conditions for a fire extinguishing system with the applicable agents, containers, and materials for the engines of the Model HA-420 HondaJet are appropriate.

#### Applicability

As discussed above, these special conditions are applicable to the Model HA-420 HondaJet. Should Honda Aircraft Company apply at a later date for a change to the type certificate to include another model incorporating 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 it affects only the applicant who applied to the FAA for approval of these features on the airplane identified.

#### 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 Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for the Honda Aircraft Company, Model HA-420 HondaJet airplane:

*SC 23.1195, Fire extinguishing systems*—Add the requirements of

§ 23.1195 as modified below while deleting, “For commuter category airplanes.”

(a) Fire extinguishing systems must be installed and compliance must be shown with the following:

(1) Except for combustor, turbine, and tailpipe sections of turbine-engine installations that contain lines or components carrying flammable fluids or gases for which a fire originating in these sections is shown to be controllable, a fire extinguisher system must serve each engine compartment.

(2) The fire extinguishing system, the quantity of the extinguishing agent, the rate of discharge, and the discharge distribution must be adequate to extinguish fires. An individual “one shot” system may be used except for embedded engines where a “two-shot” system is required.

(3) The fire extinguishing system for a nacelle must be able to simultaneously protect each compartment of the nacelle for which protection is provided.

(b) If an auxiliary power unit is installed in any airplane certificated to this part, that auxiliary power unit compartment must be served by a fire extinguishing system meeting the requirements of paragraph (a)(2) of this section.

*SC 23.1197, Fire extinguishing agents*—Add the requirement of § 23.1197 while deleting, “For commuter category airplanes.”

(a) Fire extinguishing agents must:

(1) Be capable of extinguishing flames emanating from any burning fluids or other combustible materials in the area protected by the fire extinguishing system; and

(2) Have thermal stability over the temperature range likely to be experienced in the compartment in which they are stored.

(b) If any toxic extinguishing agent is used, provisions must be made to prevent harmful concentrations of fluid or fluid vapors (from leakage during normal operation of the airplane or as a result of discharging the fire extinguisher on the ground or in flight) from entering any personnel compartment, even though a defect may exist in the extinguishing system. This must be shown by test except for built-in carbon dioxide fuselage compartment fire extinguishing systems for which:

(1) Five pounds or less of carbon dioxide will be discharged, under established fire control procedures, into any fuselage compartment; or

(2) Protective breathing equipment is available for each flight crewmember on flight deck duty.

*SC 23.1199, Extinguishing agent containers*—Add the requirements of

§ 23.1199 while deleting, “For commuter category airplanes.”

(a) Each extinguishing agent container must have a pressure relief to prevent bursting of the container by excessive internal pressures.

(b) The discharge end of each discharge line from a pressure relief connection must be located so that discharge of the fire extinguishing agent would not damage the airplane. The line must also be located or protected to prevent clogging caused by ice or other foreign matter.

(c) A means must be provided for each fire extinguishing agent container to indicate that the container has discharged or that the charging pressure is below the established minimum necessary for proper functioning.

(d) The temperature of each container must be maintained, under intended operating conditions, to prevent the pressure in the container from—

(1) Falling below that necessary to provide an adequate rate of discharge; or

(2) Rising high enough to cause premature discharge.

(e) If a pyrotechnic capsule is used to discharge the extinguishing agent, each container must be installed so that temperature conditions will not cause hazardous deterioration of the pyrotechnic capsule.

*SC 23.1201, Fire extinguishing systems materials*—Add the requirements of § 23.1201 while deleting, “For commuter category airplanes.”

Fire extinguisher system materials must meet the following requirements:

(a) No material in any fire extinguishing system may react chemically with any extinguishing agent so as to create a hazard.

(b) Each system component in an engine compartment must be fireproof.

Issued in Kansas City, Missouri on June 18, 2008.

**David R. Showers,**

*Acting Manager, Small Airplane Directorate, Aircraft Certification Service.*

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