

identified in § 23.562. In addition, since the seats installed in the Zenair CH2000 do not meet the requirements of § 23.562, an inflatable restraint that operates only after being exposed to this pulse may offer little benefit.

The commenter suggests that reference to § 23.562 be retained, but allow for the following:

- The test pulse may have a reduction in the peak longitudinal deceleration but the onset rate (deceleration divided by time) must be equal to or greater than the pulse specified in § 23.562.
- The peak longitudinal deceleration must be greater than the deployment threshold of the crash sensor.
- The peak longitudinal deceleration must be equal to or greater than the forward static design load factors required by the original certification basis of the airplane.

The FAA concurs. The seats installed in the Zenair CH2000 may not satisfy the requirements of § 23.562, so it is not appropriate to install an inflatable restraint that will deploy only when subjected to the crash pulse specified in § 23.562. The FAA agrees that the test pulse used to satisfy the dynamic test requirements must be less severe than that specified in § 23.562. In addition, we agree with the commenter that the onset rate of the test pulse should be equal to or greater than the onset rate of the pulse required by § 23.562. This will show that the crash sensor will trigger when exposed to a high deceleration that builds up in rapid time, like a real crash event.

The FAA will incorporate the commenter's input into Special Condition No. 1.

Applicability

As discussed above, these special conditions are applicable to the Zenair model CH2000 equipped with the AMSAFE, Inc. Three-Point Self-Adjusting Restraint safety belt with an integrated inflatable airbag device. Should AMSAFE, Inc. apply at a later date for a supplemental type certificate to modify any other model on Type Certificate number TA5CH 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 the Zenair model CH2000. 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.

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 type certification basis for the Zenair model CH2000, as modified by AMSAFE, Inc.

Three-Point Self-Adjusting Restraint Safety Belt With an Integrated Airbag Device

1. It must be shown that the inflatable lapbelt will deploy and provide protection under crash conditions where it is necessary to prevent serious head injuries. Compliance will be demonstrated using the dynamic test condition specified in § 23.562, which may be modified as follows:

a. The peak longitudinal deceleration may be reduced, however the onset rate of the deceleration must be equal to or greater than the crash pulse identified in § 23.562.

b. The peak longitudinal deceleration must be above the deployment threshold of the crash sensor, and equal to or greater than the forward static design longitudinal load factor required by the original certification basis of the airplane.

The means of protection must take into consideration a range of stature from a 5th percentile female to a 95th percentile male. The inflatable lapbelt must provide a consistent approach to energy absorption throughout that range.

2. The inflatable lapbelt must provide adequate protection for each occupant. In addition, unoccupied seats that have active seat belts must not constitute a hazard to any occupant.

3. The design must prevent the inflatable safety belt from being incorrectly buckled and/or incorrectly installed such that the airbag would not properly deploy. Alternatively, it must be shown that such deployment is not hazardous to the occupant and will provide the required protection.

4. It must be shown that the inflatable lapbelt system is not susceptible to inadvertent deployment as a result of wear and tear or inertial loads resulting from in-flight or ground maneuvers (including gusts and hard landings) that are likely to be experienced in service.

5. It must be shown (or be extremely improbable) that an inadvertent deployment of the restraint system during the most critical part of the flight does not impede the pilot's ability to maintain control of the airplane or cause an unsafe condition (or hazard to the airplane). In addition, a deployed inflatable restraint must be at least as strong as a Technical Standard Order certificated belt and shoulder harness.

6. It must be shown that deployment of the restraint system is not hazardous to the occupant or result in injuries that could impede rapid egress. This assessment should include occupants whose belt is loosely fastened.

7. It must be shown that an inadvertent deployment that could cause injury to a standing or sitting person is improbable.

8. It must be shown that the inflatable safety belt will not impede rapid egress of the occupants 10 seconds after its deployment.

9. For the purposes of complying with HIRF and lightning requirements, the inflatable safety belt system is considered a critical system since its deployment could have a hazardous effect on the airplane.

10. It must be shown that the inflatable safety belt will not release hazardous quantities of gas or particulate matter into the cabin.

11. The inflatable safety belt installation must be protected from the effects of fire such that no hazard to occupants will result.

12. There must be a means to verify the integrity of the inflatable safety belt activation system prior to each flight or it must be demonstrated to reliably operate between inspection intervals.

13. A life limit must be established for appropriate system components.

14. Qualification testing of the internal firing mechanism must be performed at vibration levels appropriate for a general aviation airplane.

Issued in Kansas City, Missouri, on October 2, 2003.

Dorenda D. Baker,

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