

STATEMENT OF ISSUE

CS 23.851 (a) requires at least one hand fire extinguisher to be installed in the pilot compartment which is within easy access of the pilot while seated.

BACKGROUND

The aircraft is a small two-seater for training purpose. The two pilot seats are located behind each other (trainee in the forward seat and instructor in the rear seat) and are separated by a full size divider. If operated by one pilot only the forward seat will be used. The aircraft is equipped as a standard with two ejection seats. In order to comply with the requirement CS 23.851(a) two hand-held fire extinguishers are required due to the nature of aircraft cockpit design.

The aircraft shall be certified in *Normal* and *Acrobatic* category

The aircraft is operated with a pressurized cabin, pilots wearing helmets and are supplied with breathable air. The two ejection seats are the primary escape means for the crew. They are capable of being operated at 0-speed and 0-altitude.

The space in this trainer aircraft is limited and the use of hand-held fire extinguishers will lead in a delayed ejection escape if the fire extinguishers must be stowed after an unsuccessful firefighting attempt or will lead to severe injuries to the pilots when not stowed.

The Ejection seats envelope covers nearly the entire cabin area. Therefore an installation of the fire extinguisher is almost impossible without compromising a safe ejection.

DISCUSSION

ESF Conditions

The applicant should

- analyze and demonstrate that the likelihood of a fire is improbable; and
- that AFM procedures are in place including clear instructions to be followed in case of a fire

CONCLUSION

The aircraft is intended to be used for pilot training and transportation of passengers is excluded. The equipment especially the ejection seats installed in the aircraft make the installation and the use of fire extinguishers impractical. The applicant defined flammable material and ignition sources in the cockpit area and intends to demonstrate the likelihood of a fire is extremely improbable. Flammable material is limited to flight maps in an enclosed metal stowage and flammable fluids are contained as hydraulic liquid in master cylinder of the landing gear behind the pedals, and in the load balancer cylinder of the canopy system.

The aircraft is operated by crew wearing helmets and permanent oxygen supply masks. Other belongings of the crew will be stowed in a remote cargo compartment.

If a hand held fire extinguisher will be used this will most probably lead to a severe or dangerous situation in cases where ejection seats are used.

EASA is of the opinion that the lack of flammable material and ignition sources in the cockpit as demonstrated by the applicant, the type of operation with trained crew only and the provisions for protective breathing equipment and ejection seats provide an equal level of safety for the occupants compared with ordinary type of part 23 airplane cockpit/cabin arrangement with a fire extinguisher installed.