



U.S. Department
of Transportation
**Federal Aviation
Administration**

99-11 Raytheon, 300

Work → 111 FILE

Memorandum

Subject: **ACTION:** Review and Concurrence, Equivalent Level of
Safety ; ACE-99-11

Date: December 17, 1999

From: Manager, Wichita ACO

Reply to Mr. David Ostrodka
Attn. of: ACE-118W

To: Manager, Small Airplane Directorate, ACE-100

Attn:

Background: Section 23.853(d)(3)(v) provides relief for the requirement to burn test small parts that the Administrator finds would not contribute significantly to the propagation of a fire for commuter category aircraft. The Model 390 is a normal category aircraft for which the manufacturer has requested similar relief for section 23.853(a).

Applicable regulations: Amendment 23-34 of Part 23 introduced certification requirements for commuter category airplanes that included 14 CFR §§ 23.831(b), 23.851, and 23.853(d). These regulations provided additional fire protection, ventilation requirements and added a requirement for fire extinguisher installation. Small parts were exempted from the burn test requirement, but all other parts were subjected to a more stringent vertical burn test requirement. Amendment 23-42 of Part 23 required all pressurized aircraft to meet the ventilation requirements of § 23.831(b). Amendment 23-45 of Part 23 introduced the requirement that all aircraft categories in Part 23 have a fire extinguisher installed.

Regulation Requiring an ELOS: Section 23.853(a) requires that for each compartment used by the crew or passengers the materials must be at least flame resistant.

Compensating features which allow the granting of the ELOS: Raytheon Engineering Specification "Determine Flame and Fire Resistance of Material, all Models," BS414 applies to Raytheon Model 390 as well as all airplanes built under the provisions of Production Certificate PC8. BS414 includes a matrix outlining all model material flammability regulatory requirements and the Raytheon mandated testing required. All flexible fabrics, leathers and carpeting procured by, and received by, Raytheon for installation into production aircraft must pass the material flammability requirements of the respective model certification basis and be tested per BS414 as defined on the engineering drawings and Engineering Department Purchase Requests. BS414 mandates that all flexible fabrics, leathers and carpeting to be installed in Raytheon Model 390 will be tested to the twelve second vertical burn tests equivalent to 14CFR 23.853 (d)(3)(ii) burn test.

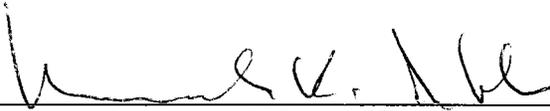
Explanation of how these features provide an ELOS: An equivalent level of safety to the requirement of § 23.853(a) that all materials in compartment interiors be at least flame resistant without burn testing small parts will be provided if a reasonable portion of the cabin interior materials are tested to the vertical burn test requirements of § 23.853(d)(3)(i) or (ii). Reasonable amounts would be all floor coverings and textiles, or all interior panels, or some combination of components. It is not intended that all large interior parts be tested to the more stringent vertical burn test requirements to meet an equivalent level of safety.

ACO Recommendation: The Wichita ACO recommends that an ELOS be granted for § 23.853(a). Raytheon Specification BS414 mandates that all flexible fabrics, leathers and carpeting to be installed in Raytheon Model 390 will be tested to a twelve second vertical burn test equivalent to the 14 CFR 23.853 (d)(3)(ii) burn test which is a more stringent requirement than § 23.853(a). Therefore, Raytheon provides an ELOS without performing burn tests on small parts.



Everett W. Pittman, ACE-115W
Manager, Wichita Aircraft Certification Office

Concurrence:



Manager, Standards Office, ACE-110

12/30/99
Date



Manager, Small Airplane Directorate, ACE-100

12/30/99
Date