

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC 20591

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In the matter of the petition of *
*
BEECH AIRCRAFT CORPORATION *
*
for exemption from *
SFAR 41C 5(e)(k) of the *
Federal Aviation Regulations *
*

Docket No. 035CE

DENIAL OF EXEMPTION

By letter dated February 25, 1987, Mr. W. H. Schultz, Post Office Box 85, Wichita, Kansas 67201, petitioned for exemption from compliance with SFAR 41C 5(e)(k) of the Federal Aviation Regulations (FAR) to permit the manufacture of the Model 300 Series Airplanes having a ten passenger "soft touch" interior, which does not comply with the aisle width requirements of the FAR.

Sections of the FAR affected:

SFAR 41C 5(e)(k) provides, in pertinent part, that for airplanes type certificated to SFAR 41, the width of the main passenger aisle at any point between seats and 25 inches or more from the floor must be 15 inches or more.

The petitioner's supportive information is as follows:

The original certificated version of the Model 300 utilized commuter style seats to achieve a passenger seating of 13 places and compliance with the requirements of SFAR 41C 5(e)(k). However, when the ten passenger version was configured with larger executive style chairs, Beech neglected to assure compliance with the aisle width requirements. The aisle width, in this "soft touch" configuration narrows to ten inches in two locations where the backs of the chairs are positioned across the aisle from each other at the same fuselage stations. Compressing the upholstery on the seat back provides a 14-inch aisle at these two locations.

The petitioner contends that granting of this exemption would be in the public interest in that continued sale and operation of the Model 300 executive interior with ten passengers could continue. Any change or narrowing of the seat back would destroy symmetry and significantly reduce appeal while having no increased safety benefit in the opinion of

Beech. The petitioner further contends that to eliminate one passenger seat; thus, causing the minimum aisle width to no longer apply, would result in loss of sales and revenue, and result in an economic burden and owner dissatisfaction. The petitioner offers two compensating factors which he contends are present to establish a level of safety commensurate with that of the original Model 300 certification.

First, the petitioner notes that presently the Model 300, with the high density or commuter type seats is approved with an occupancy of 13; whereas, for the "soft touch" interior the Model 300 has a maximum capacity of ten passengers. The petitioner contends that the smaller number of passengers is beneficial to emergency egress, when all other factors are equal. Emergency egress tests documented in Beech Report 101E2504, and witnessed by FAA personnel from the Wichita Aircraft Certification Office, resulted in evacuation times of 42 seconds for the interior with a 16-inch aisle width and 55 seconds for the interior with a 10-inch aisle width. Because passengers were congregated at the exit waiting to egress in both tests, the petitioner contends that the longer time shown for the tests with the narrower aisle width is not a function of the narrower aisle, but illustrates the variation in evacuation times that can be expected where different groups are involved.

Second, the petitioner contends that the exit marking system on the Model 300 utilizes signs which exceed the illumination requirements of SFAR 41C 5(e)(i). These signs are internally lighted by a power source which is independent from the airplane power, and are inertially activated by moderate ground impact. The petitioner notes that excess illumination from the exit signs is beneficial to emergency egress in cases involving total darkness, and these signs are required equipment, per the limitations section of the Model 300 Pilot Operating Handbook (POH).

The FAA requested additional data from Beech which would assure that this exit marking system would be available after a survivable crash landing and would provide adequate illumination for rapid egress past those areas in the cabin where the seats protrude into the required aisle space. The FAA suggested that Beech consider developing criteria for the exit marking system which would assure adequate operating, reliability, strength, and illumination features to assure this system would aid in egress past the locations of reduced aisle width during emergency conditions. The FAA noted that, in a similar action, a Notice of Proposed Special Conditions was issued (52 FR 1011, dated March 30, 1987) for Fairchild Corporation Model SA227-AC airplanes which are incorporating an emergency lighting system as an aid for emergency evacuation. The FAA suggested that Beech consider developing similar criteria.

In response, the petitioner contends that, by installing an emergency exit lighting system which exceeds the requirements of SFAR 41C 5(e)(i), the aisle width requirements of SFAR 41C 5(e)(k) are compensated for by factors that serve to maintain the level of safety provided by the original Model 300 certification. The petitioner notes that the Model 300 exit lighting system complies with FAR Part 25 Pre-Amendment 15, and provides adequate operating, reliability, strength

and illumination features to assure safety in an emergency condition. The petitioner contends that the Model 300 exit lighting system meets the same objectives as those provided in the proposed Special Conditions for the Fairchild Model SA227-AC emergency lighting system; and, to require a different system from that now present in the Model 300 will be costly to their customers and not contribute to additional safety.

Comments on published petition:

A summary of this petition for exemption was published in the FEDERAL REGISTER (52 FR 11904, dated April 13, 1987), and no comments were received.

The Federal Aviation Administration's (FAA) analysis is as follows:

To obtain the exemption, the petitioner must show, as required by § 11.25(b)(5) of the Federal Aviation Regulations, that: (1) granting the request is in the public interest, and (2) the exemption would not adversely affect safety, or that a level of safety will be provided which is equal to that provided by the rule from which the exemption is sought.

The FAA has carefully reviewed the information contained in the petitioner's request for exemption. The aisle width requirements of SFAR 41C 5(e)(k) were in the original SFAR 41, except in this original issuance of SFAR 41, the main passenger aisle width requirement of 15 inches for heights of 25 inches or more from the floor covered airplanes with a total seating capacity of 10 to 23. For airplanes with a total seating capacity over 23, the main passenger aisle width requirement was 20 inches at any location 25 inches or more above the floor. SFAR 41, as originally proposed (43 FR 46734-46739, dated October 10, 1978), contained these aisle width requirements. The preamble to SFAR 41, as adopted (44 FR 53723-53728, dated September 17, 1979), indicates that no adverse comments were received on the minimum aisle width requirements.

With Amendment C (47 FR 35150-35153, dated August 12, 1982), the applicability of SFAR 41C was amended, in part, to eliminate the 12,500 pound maximum zero fuel weight (MZFW) restriction and limit the number of passenger seats to 19 for those small propeller-driven multiengine airplanes that operate at a certificated gross takeoff weight in excess of 12,500 pounds. For this amendment, SFAR 41C 5(e)(k) was revised to reflect the limit on the number of passenger seats; however, the 15 inch minimum aisle width restriction for locations 25 inches or more from the floor remained unchanged.

The petitioner contends that, although the seats restrict the aisle to 10 inches at two locations, the seat cushions can be compressed to expand this width to 14 inches; however, this is still one inch narrower than the minimum required aisle width stated in SFAR 41C 5(e)(k). Also, the FAA stated policy is that the minimum aisle width distance should be determined without compressing the seat fabric or cushions and with the seats or other aisle constraints in the most adverse position.

The petitioner has not provided sufficient information or technical data to support the contention that granting the exemption would be in the

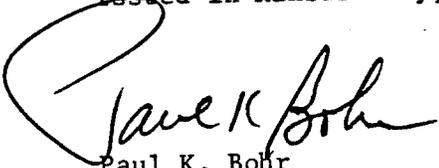
public interest. The contention of the petitioner that public interest would best be served by retaining the current seating configuration to avoid a loss of sales, a loss of revenue, an economic burden, and owner dissatisfaction is not supported by the data furnished in the request for exemption.

The petitioner contends that the change in aisle width has been demonstrated by test to not influence emergency egress, although the test results show that the emergency egress test took 13 seconds longer with the 10 inch aisle width configuration than with the 16 inch aisle width configuration. Although aisle width restrictions may have an effect on overall egress capability, SFAR 41C contains separate requirements for main passenger aisle widths and evacuation demonstration times. The FAA considers these requirements unique, and does not consider an evacuation demonstration, which must meet the requirements of SFAR 41C 5(e)(h), to be a compensating factor for approving an exemption to the aisle width requirements of SFAR 41C 5(e)(k). The FAA disagrees with the petitioner's contention that these test results adequately demonstrate that the aisle width restrictions have no adverse affect on safety.

The petitioner has not provided sufficient evidence for allowing the exit lighting system on the Model 300 to be used as a compensating factor for exemption to the aisle width requirements of SFAR 41C 5(e)(k). The FAA is aware that the lighting available during an emergency, as well as the available aisle width, has an effect on the ability to egress the airplane in the emergency. However, the ability of available lighting to compensate for aisle width restrictions is a complex issue which has not been demonstrated by the petitioner. The fact that the exit marking system exceeds the illumination requirements of SFAR 41C 5(e)(i) is not justification for using this lighting as a compensating factor for exemption to the aisle width requirements.

In consideration of the foregoing, I find that a grant of exemption, as requested, is not in the public interest nor maintains the level of safety required by the rule from which the exemption is sought. Therefore, pursuant to the authority of Sections 313(a) and 601(c) of the Federal Aviation Act of 1958, delegated to me by the Administrator (14 CFR 11.53), the petition of Beech Aircraft Corporation for an exemption from SFAR 41C 5(e)(k) of the Federal Aviation Regulations is hereby denied.

Issued in Kansas City, Missouri on July 6, 1987.


Paul K. Bohr
Director, Central Region