

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, D.C. 20591

In the matter of the petition of *
*
BEECH AIRCRAFT CORPORATION *
*
*
for temporary exemption from *
§ 23.2 of the Federal Aviation *
Regulations *

Regulatory Docket No. 028-CE

DENIAL OF EXEMPTION

By letter dated October 17, 1986, Beech Aircraft Corporation, Post Office Box 85, Wichita, Kansas 67201, petitioned for a temporary (one year) exemption from § 23.2 of the Federal Aviation Regulations (FAR) to permit the manufacture of airplanes with side-facing passenger seats which do not comply with the requirements of § 23.785(g) of the FAR.

Section of the FAR affected:

Section 23.2 provides, in pertinent part, that each normal, utility, and acrobatic category airplane having a passenger seating configuration, excluding pilot seats, of nine or less, manufactured one year after December 12, 1985, or any such foreign manufactured airplane for entry into the U.S., must meet the requirements of § 23.785(g) and (h). Section 23.785(g) requires that each occupant must be protected from serious head injury when subjected to the inertia forces prescribed in § 23.561(b)(2) for normal, utility, and acrobatic category airplanes, by a safety belt and shoulder harness that is designed to prevent the head from contacting any injurious object for each forward- and aft-facing seat. For other seat orientations, the seat must be designed to provide a level of occupant protection equivalent to that provided for forward- and aft-facing seats with safety belts and shoulder harnesses installed.

The petitioner's supportive information is as follows:

The petitioner states that shoulder harnesses are being installed on all forward- and aft-facing seats as standard equipment on all of the petitioner's current production airplanes, and kits for in-service airplanes are available for installation of shoulder harnesses on forward- and aft-facing seats. However, similar installations are

not offered for side-facing seats since the petitioner contends such shoulder harness installations, used with side-facing seats, might enhance injuries when occupants are subjected to the inertia forces prescribed in § 23.561(b)(2). The petitioner contends that the FAA has not developed the data to define the safety provisions for side-facing seats necessary to show compliance with § 23.785(g). Although some of the petitioner's questions to the FAA have been resolved, the petitioner desires more detailed guidance material on compliance with § 23.2. The petitioner asserts that the intent of the occupant restraint requirements of § 23.785(g) pertain to protection from serious head injury only. In addition, the petitioner argues that the installation of a shoulder harness on a side-facing seat makes no difference to the regulatory compliance since a shoulder harness provides no protection against side loads and does not constrain the head.

Based on the issues previously stated, the petitioner proposes that, until guidance is made available on occupant restraint for side-facing seats, the existing safety belt only and delethalization of the cabin area surrounding each seat within the head and torso striking distance provides safety equivalent to existing rules.

Comments on published petition:

A summary of the petition for exemption was published in the FEDERAL REGISTER on November 5, 1986 (51 FR 40290), and comments were received from the General Aviation Manufacturers Association, which support a grant for exemption. The commenter believes that the exemption should be granted because the commenter contends that the inability of the petitioner to meet the requirements of § 23.2 results from FAA uncertainty as to the scope of and the delay in issuing compliance criteria. The commenter also states his position that the FAA should allow use of the criteria in § 25.785(c) as a means to show compliance with § 23.785(g) since there are no significant differences in side-facing seat designs of the Part 25 business jets and the Part 23 heavy twins.

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 FAR, 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 petitioner presented no information or data to support that granting of the exemption would be in the public interest of

potential occupants of side-facing seats in airplanes manufactured during the one year period requested in the petition.

Occupants of side-facing seats are entitled to the same level of safety in an airplane as those occupying forward- and aft-facing seats with a safety belt and shoulder harness installed. In the preamble to Amendment 23-32, which amended § 23.785(g), the FAA recognized this and stated that it did not have adequate data to define safety provisions for side-facing seats or club seating equivalent to that afforded by a forward- or aft-facing seat with a shoulder harness. Further, the FAA did not consider the berth restraint requirements to be adequate for seats.

The rulemaking action adopting Amendment 23-32 defines the occupant restraint requirement for forward- and aft-facing seats, and requires that if an applicant chooses to provide different seating arrangement, the applicant must provide adequate data to substantiate those seat's restraint means to provide an equivalent level of safety. The FAA clarified the requirements adopted in § 23.785(g) by stating that for seat orientations other than forward- and aft-facing, the seat and restraint means must be designed to provide a level of occupant protection equivalent to that provided for forward- and aft-facing seats with safety belts and shoulder harnesses installed. When the rule was promulgated, the FAA recognized that providing an equivalent level of safety on side-facing or club seats may present the designer a more difficult task than forward- or aft-facing seats.

The purpose of the rulemaking action was to raise the level of safety for all passengers. Further, the action clearly indicated all passengers were to be provided a level of safety at least equal to a specified minimum - not a minimum that varied with seat orientation. The petitioner presented no data to support that granting of the exemption would not adversely affect the level of safety established by the requirement to protect passengers in other than forward- and aft-facing seats.

The FAA does not agree with the petitioner's contention that, until guidance is made available for side-facing seat occupant restraint means the existing safety belt only and delethalization of the cabin area surrounding each seat within the head and torso striking distance should be permitted as an alternative to complying with § 23.785(g), as amended, by Amendment 23-32. The requirement for delethalization of the cabin area surrounding each seat within the head and torso striking distance was adopted by Amendment 23-19, effective July 18, 1977, and does not provide the enhanced level of safety for small airplanes with a safety belt and shoulder harness installed on forward- and aft-facing seats, as adopted by Amendment 23-32.

Furthermore, the FAA does not agree that the occupant restraint requirements provide protection of the occupant's head only. The

requirement to protect the occupant from serious head injury is only a gauge in an objectively stated rule for evaluating the effectiveness of a shoulder harness in a forward- or aft-facing seat. In addition, the FAA does not agree with the petitioner's contention that a shoulder harness for a side-facing seat provides no protection against side loads and does not constrain the head, although many existing designs clearly do not provide the level of protection for occupants of side-facing seats that is required by § 23.785(g) as amended. It is agreed, however, that a shoulder harness designed for forward- or aft-facing seats probably will not provide the equivalent protection for a side-facing seat. This is clearly recognized in the requirements of § 23.785(g) and the FAA did not use the term "shoulder harness" for seat orientations other than forward- and aft-facing seats, but rather used the term "restraint means" to afford those applicants that desired to install side-facing seats with a means of restraining or protecting the occupant by a shoulder harness or other device. This does not negate the requirement to provide protection equivalent to that afforded occupants of forward- or aft-facing seats with the shoulder harness. A shoulder harness in a forward-facing seat does not constrain the head per se, but rather constrains the upper torso to prevent the upper torso and head from contacting any injurious object. In addition, an aft-facing seat without a head rest could not be approved due to the inability of the specifically required shoulder harness to prevent serious injury to the occupant's neck. The preamble to Amendment 23-32 discussed a comment recommending the use of upper torso restraint in place of shoulder harness and the FAA concluded that, since the aviation community readily identifies the term "shoulder harness", the shoulder harness term should be retained in the amendments for forward- and aft-facing seats.

The FAA does not agree with the commenter to the petition which contends that the FAA should accept designs complying with § 25.785(c) as providing a level of safety equivalent to that required by § 23.785(g), as amended by Amendment 23-32. Section 23.785(g), as amended, requires that the level of safety for side-facing seats be equivalent to that of forward- and aft-facing seats with a safety belt and shoulder harness installed. The requirements of §§ 25.785(c) and 23.785(g), as amended, are different. This increased level of restraint, now required in small airplanes, is necessary because of the greater frequency of small airplane survivable crashes. Both the NTSB and GAMA recognized this need, as evidenced by the NTSB recommendations for rulemaking and GAMA's petition for rulemaking.

In consideration of the foregoing, I find that a grant of exemption, as requested would not be in the public interest nor maintain the level of safety required by the rule from which the exemption is sought. Therefore, pursuant to the authority in Sections 313(a) and 601(c) of the Federal Aviation Act of 1958, as amended, delegated to

me by the Administrator (14 CFR 11.53), the petition of Beech Aircraft Corporation for an exemption from § 23.2 of the Federal Aviation Regulations is denied.

Issued in Kansas City, Missouri on December 9, 1986.

Edwin S. Hami