Exemption No. 5411

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
KANSAS CITY, MISSOURI 64106

In the matter of the petition of BEECH AIRCRAFT CORPORATION	Regulatory Docket No. 100CE
for an exemption from §§ 23.473(c) and 23.1001 of the Federal Aviation Regulations	

GRANT OF EXEMPTION

By letter dated November 5, 1991, Mr. W. H. Schultz, Division Manager, Technical Service and FAA Liaison, on behalf of Beech Aircraft Corporation, P.O. Box 85, Wichita, Kansas 67201, petitioned for an exemption from §§ 23.473(c) and 23.1001 of the Federal Aviation Regulations (FAR). Beech is seeking to amend the type certificate for its model 2000 airplane to permit a landing weight less than 95 percent of the maximum takeoff weight without installing a fuel jettisoning system.

The petitioner requires relief from the following regulations:

Section 23.473(c) requires, in pertinent part, that multiengine airplanes having a design landing weight less than 95 percent of the maximum weight comply with the fuel jettisoning system standards of § 23.1001.

The petitioner supports its request with the following information:

Beech is seeking an amended type certificate to increase, by 400 pounds, the maximum weight of its Model 2000 airplane, as defined by Type Certificate Data Sheet No. A38CE. Section 23.473(c) of the FAR permits the design landing weight of multiengine airplanes to be less than 95 percent of the maximum weight if certain requirements are met; among them is the requirement for a fuel jettisoning system in accordance with § 23.1001. Beech is

petitioning for exemption from § 23.473(c) which, in pertinent part, requires compliance with the fuel jettisoning system standards of § 23.1001. Beech offers to substitute the climb requirements incorporated by reference in § 25.1001(a) of the FAR.

The following is extracted verbatim from the petition:

"For transport category airplanes, the fuel jettisoning requirement of FAR 25.1001 was changed with Amendment 25-18. This change removed the requirement for a fuel jettisoning system for transport category airplanes as long as specific climb gradients are satisfied. This change has been shown to have resulted in an equivalent level of safety for transport category airplanes.

When the commuter category was established for FAR Part 23 (Amendment 23-34), climb gradient requirements similar to FAR Part 25 were enacted but the requirement for a fuel jettisoning system was retained for aircraft with landing weights less than 95% of the gross weight. Therefore, incorporation of these same provisions (specific approach and landing climb performance requirements in lieu of a fuel jettisoning system) for commuter category airplanes will also result in an equivalent level of safety.

Granting of this exemption is also in the public interest since:

(a) Incorporation of a fuel jettisoning system by itself, does not guarantee that a specific takeoff will have go-around capability in event of an immediate return to the field, whereas, requiring specific climb gradients will assure this capability.

(b) Dumping of fuel is not environmentally acceptable from the viewpoints of a wasted resource and air/ground/water pollution. Transport category aircraft experience has shown that fuel dumping is not necessary to assure safety of the flight.

(c) The costs to the public associated with increasing the utility of the airplane (increased payload-range) will be substantially lower without a fuel jettisoning system.

(d) The safety concerns, in the event of an inadvertent fuel dump, far outweigh the potential benefit of protecting the airplane from an overweight landing resulting from an immediate return to the takeoff field.

Any structural strength concern, about overweight landings for transport category airplanes, is addressed in FAR 25.473(a) by requiring the structure to be designed for a sink rate of 6 ft./sec. at design takeoff weight. Beech will substantiate the structure to this limit."

Comments on published petition summary:

A summary of this petition was published in the FEDERAL REGISTER for public comment on December 30, 1991 (56 FR 67356). The comment period closed January 20, 1992. No comments were received.

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

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

The FAA has reviewed and evaluated the information contained in Beech's petition. The major thrust of Beech's supportive data is:

1. Transport category airplanes with specific climb gradients have been shown to be safe without fuel jettisoning systems.

2. Incorporation of these same provisions (climb requirements incorporated by reference in § 25.1001(a) instead of a fuel jettisoning system) in commuter category airplanes will provide a level of safety equivalent to that of transport category airplanes.

The FAA accepts the argument set forth in the supportive data.

In consideration of the foregoing, I find that a grant of exemption is in the public interest and will not adversely affect safety. Therefore, pursuant to the authority contained 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), Beech Aircraft Corporation is granted an exemption from §§ 23.473(c) and 23.1001 of the FAR to the extent necessary to permit type certification of the Beech Model 2000 airplane having a landing weight less than 95 percent of the maximum takeoff weight without installing a fuel jettisoning system. This exemption is subject to the following conditions and limitations:

1. Section 23.67(e)(3) shall be substituted for the following:

"In the landing configuration, the steady gradient of climb may not be less than 3.2 percent with the engines at the power or thrust that is available eight seconds after initiation of movement of the power or thrust controls from the minimum flight idle to the takeoff position and a climb speed of not more than $1.3V_S$."

Section 23.77(c) shall be substituted for the following:

"In the approach configuration corresponding to the normal all-engines-operating procedure in which V_S for this configuration does not exceed 110 percent of the V_S for the related landing configuration, the steady gradient of climb may not be less than 2.1 percent for two-engine airplanes, 2.4 percent for three-engine airplanes, and 2.7 percent for four-engine airplanes with the critical engine inoperative, the remaining engines at the available takeoff power or thrust, the maximum landing weight, and a climb speed established in connection with normal landing procedures, but not exceeding 1.5 V_S."

2. In addition to the structural requirements of FAR Part 23, the structure shall be shown to be adequate for landing at a sink rate of 6 feet per second at the design takeoff weight for the conditions identified in §§ 23.479, 23.481, 23.483, and 23.485.

3. Using a wing lift component equal to 2/3 of the design takeoff weight, the design must comply with a limit descent velocity of 6 f.p.s. at the design takeoff weight.

4. The design must comply with §§ 23.499 and 23.509 at the design takeoff weight.

Issued in Kansas City, Missouri on February 27, 1992.

Barry D. Clements, Manager
Small Airplane Directorate
Aircraft Certification Service