

Exemption No. 6732

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

Simmons Airlines

for an exemption from 14 CFR
§§ 25.562(c)(5) and 25.785(a)

Regulatory Docket No. 29098

DENIAL OF EXEMPTION

By letter dated December 15, 1997, Wayne Norful, Director of Engineering, Simmons Airlines (dba American Eagle) 1600 W. 20th St. Hangar I, DFW Airport, TX 75261, petitioned for an exemption regarding the Head Injury Criterion (HIC) of §§ 25.562(c)(5) and 25.785(a) of the Federal Aviation Regulations (FAR), for front row and exit row passenger seating in Embraer EMB-145 airplanes, until July 31, 1998.

Sections of the FAR affected:

Section 25.785(a) requires that each seat, berth, safety belt, harness, and adjacent part of the airplane at each station designated as occupiable during takeoff and landing must be designed so that a person making proper use of those facilities will not suffer serious injury in an emergency landing as a result of inertia forces specified in §§ 25.561 and 25.562.

Section 25.562(c)(5) requires that each occupant must be protected from serious head injury under the conditions prescribed in paragraph (b) of this section. Where head contact with seats or other structure can occur, protection must be provided so that the head impact does not exceed a Head Impact Criterion (HIC) of 1,000 units. The level of HIC is defined by the equation:

$$\text{HIC} = \left[(t_2 - t_1) \left[\frac{1}{(t_2 - t_1)} \int_{t_1}^{t_2} a(t) dt \right]^{2.5} \right]_{\max}$$

The petitioner's supportive information is as follows:

“In accordance with the provisions of Part 11.25 of the Federal Aviation Regulations (FAR), American Eagle Airlines, operated by Part 121 carrier Simmons Airlines certificate # SIMA069A, herein petitions for an expedited temporary partial exemption from the Head Injury Criteria (HIC) of FAR 25.562 (c) (5) with respect to Front Row (3 each) and Emergency Exit (3 each) Passenger Seats for operation of a newly acquired Embraer EMB-145 regional jet. The time period requested for the partial exemption is six (6) months commencing with the first Embraer delivery in February 1998 until July 31, 1998.

“The reason for this request is that the selected 16g seat manufacturer, B/E Aerospace expects to successfully meet all TSO requirements of a new 16g seat by mid January 1998 with exception of the Head Injury Criteria of FAR 25.562 (c) (5) for the Front Row and Emergency Exit seats.

“Background Information:

“1. Simmons has purchased forty-two (42) Embraer EMB-145 regional jets with an option for an additional twenty-five (25) deliveries. The following table represents the scheduled delivery of the 16g seat - 50 passengers EMB-145 aircraft and retirement of the 9g seat - 34 passenger SAAB 340B Aircraft.

| <u>Year</u> | <u>16g Aircraft Introduction</u> | <u>9g Aircraft Retirement</u> |
|-------------|----------------------------------|-------------------------------|
| 1998 | 20 | 6 |
| 1999 | 22 | 24 |

“During the period of the requested six (6) month temporary exemption, Simmons will receive delivery of only ten (10) EMB-145 aircraft for introduction into operation.

“2. At time of aircraft purchase only one (1) seat manufacturer was approved for use on the EMB-145 aircraft. Simmons reviewed the approved seat along with other competitive manufacturer's seat designs. B/E Aerospace was selected by Simmons to manufacturer and supply 16g seats. The B/E Aerospace seat was selected because we believed, based on our experience with similar models installed on our ATR42 and ATR72 aircraft, its design offered better maintenance/reliability features and would provide the passengers with superior service and comfort.

“Scope of Request:

“1. During the period, Feb. 19th through July 31, 1998, of the six (6) month partial exemption, Simmons will receive and put into service ten (10) EMB-145 aircraft.

“2. The partial exemption would only apply to the Front Row (3 each) and Emergency Exit (3 each) seats, a total of 6 passenger places per aircraft.

“3. All other requirements of FAR's for TSO of the new 16g seats would be met with the exception of the HIC specified by FAA 25.562 (c)(5) at front row and emergency exit positions. This requirement to be complied with prior to the requested temporary exemption termination date of July 31, 1998.

“4. It be understood that with the granting of the requested temporary partial exemption to the Head Injury Criteria (HIC) Requirements of Section 25.562 (c) (5) for the front row and emergency exit seats, that FAR Section 25.785 (a) likewise be exempt from the same HIC requirements.

“Supportive Information:

“Simmons believes the granting of the temporary exemption to be in the best interest of the Aerospace Industry, the Federal Regulatory Administration, the Flying Public and will not adversely affect passenger safety.

“1. Additional seat manufacturer competition and capacity will become available to improve seat design, and to support the flying public.

“2. Additional testing and certification to the 16g seat requirements will be beneficial by increasing knowledge and experience in an area leading to improvement of passenger safety.

“3. The HIC requirements for Front Row and Emergency Exit Row seats are hard to meet on new seat design as evidenced by the number of partial exemptions previously requested and granted. Additional competition, testing and certification will continue to increase knowledge and reduce problems associated with meeting the requirements.

“4. Our request for partial exemption is applicable to only 6 passengers places for ten (10) aircraft for a period of six months. We will be removing from service thirty (30) aircraft with 9g seats over a two (2) years while adding forty-two (42) aircraft complying with 16g requirements.

“5. Simmons has no record of an accident in which safety would have reduced injuries.

“6. Simmons evaluation of the B/E Aerospace seat proposed for temporary partial exemption indicates it will provide passengers with superior service and comfort in addition to the added safety associated with 16g seating.

“Section 11.25 (b) (1) states that the petition for exemption be submitted at least 120 days before the effective date of the exemption. Since there have been a number of requests for similar partial temporary exemptions and they have been granted, Simmons asked that a waiver

of the 120 day time constraint be considered and the request for partial exemption be granted on or before February 1, 1998. This consideration is being asked due to the time constraints of our forthcoming deliveries and hopes to implement service of the EMB-145 aircraft in a timely manner as to not affect our service to the flying public.”

A summary of the petitioner’s request for Exemption appeared in the Federal Register on January 8, 1998 (63 FR 1144). No comments were received.

The FAA's analysis/summary is as follows:

The FAA acknowledges that compliance with the Head Injury Criterion requirements of § 25.562(c)(5) have proven to be difficult, especially for occupants seated behind interior structures (as opposed to seats behind other seats), so called “front row seats.” For this reason, the FAA had granted several temporary exemptions, for front row occupants only, to allow additional time to develop technically and practically viable solutions. All of these temporary exemptions have now expired. The petitioner makes reference to some of these similar petitions that have been granted, and has requested an expedited processing of this petition on the assumption that, since other petitions had been granted, this one would be as well. The petitioner maintains that the notification requirements of § 11.25 would not apply. The FAA notes that each petition for exemption stands on its own, and each case is treated individually. The FAA has made it very clear in dealing with other petitions on this matter that no further extensions to existing exemptions will be granted. Furthermore, the FAA has previously denied petitions for relief from the HIC requirements, where insufficient justification was provided. In addition, the FAA has never granted an exemption for HIC for row-to-row seating.

In this case, the petitioner is requesting a temporary exemption, due to the unavailability of alternate seats, for an airplane that has already shown compliance with the requirement. The petitioner wants to install a seat model for which the airframe manufacturer has not shown compliance. An alternate seat supplier was chosen for commercial reasons.

While the FAA appreciates that operators desire to individualize their service, this is not sufficient basis for relief from an otherwise achievable safety rule. The petitioner states that, by employing a different seat supplier, the industry will benefit from the added test and certification experience. However, the FAA notes that the vendor chosen is already deeply involved in certification with dynamic testing and compliance with the HIC requirements, and it is unlikely that this program would add materially to the overall knowledge of the industry.

The petitioner also notes that the EMB-145’s that they are introducing into service will replace existing airplanes that have an earlier certification basis which does not require dynamic testing. The petitioner argues that the improvement in safety, even with partial compliance, is significant and should be considered in support of an exemption. While this argument is not without merit, such logic could be used to justify almost any exemption on the basis of the overall airplane

being an improvement over the model it replaces. Safety improvements would never be implemented if this line of reasoning is taken to its extreme.

The rationale that the EMB-145 represents an overall upgrade in safety over the airplane it replaces has even less merit, since the EMB-145 has an approved configuration, and a known certification basis. Even if an alternate vendor is utilized, the certification requirements are known and understood, and have been complied with for other operators. It isn't clear from the petition why the seat certification schedule and the delivery of the airplanes are not compatible.

The FAA has previously granted exemptions from the requirements of § 25.562(c)(5) for front row seats, in those cases where there either was no viable technical solution, or a solution was forthcoming, but not quite available. In addition, the FAA has only granted exemptions in those cases where the alternative to not granting the exemption was removal of seats. In this case, neither of these conditions apply. There is a technical solution, as evidenced by the original approval of the EMB-145. Removal of seats is not required since there are seats that comply. Therefore, the FAA has concluded that there is insufficient basis for an exemption, and that such a grant would not be in the public interest.

In consideration of the foregoing, I find that a grant of exemption is not in the public interest. Therefore, pursuant to the authority contained in 49 US 40113 and 44701, delegated to me by the Administrator (14 CFR 11.53), the petition of Simmons Airlines for exemption from the HIC requirements of §§ 25.562(c)(5) and 25.785(a) of the FAR, for front row and exit row seats on Embraer EMB-145 airplanes is hereby denied.

Issued in Renton, Washington, on February 23, 1998

/s/ Ronald T. Wojnar

Ronald T. Wojnar

Manager, Transport Airplane Directorate,
Aircraft Certification Service, ANM-100