



AEROSPACE RECOMMENDED PRACTICE

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ARP 766A

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RESTRAINT DEVICE FOR SMALL CHILDREN

1. PURPOSE

This Aerospace Recommended Practice (ARP) establishes guidelines for the performance of restraint systems, applicable for use in civil transport aircraft, for small children weighing between 20 lb (9.1 kg) and 40 lb (18.1 kg). (For guidance on infants under 20 lb (9.1 kg) and/or too young to sit up, and utilizing a recumbent infant restraint, see ARP 1469).

2. INTRODUCTION

The restraint device described in this ARP is intended to be used by small children able to sit up, and weighing up to 40 lb (18.1 kg), to provide improved protection during landings and take-offs, turbulence, and survivable aircraft impacts. The device will be used in a not otherwise occupied adult passenger seat in a civil transport aircraft, and be held to the seat by the adult seat belt, or by the adult belt attachment.

3. DYNAMIC IMPACT PROTECTION

The restraint device, when occupied by a small child and while installed in a typical civil transport passenger seat, shall be capable of providing protection during an impact which produces a 44 ft/sec. (13.4 m/sec.) velocity change with g levels not exceeding the range specified in Fig. 1, and with the deceleration vector at any angle within a forward 45° cone of the longitudinal axis of the aircraft. The child occupant shall be retained within the system; the system shall show no separation of components or joints; no portion of any belt restraint system should release; the child occupant shall be protected against compression between any parts of the restraint device and/or the passenger seat back; and if the child's restraint is forward facing, it shall be installed in seating positions where more than 18 in. (457.2 mm) of unobstructed distance exists from the seat reference point forward to the back surface of the seat or bulkhead ahead.

4. PROTECTION AGAINST TURBULENT FLIGHT CONDITIONS

To provide protection against turbulence encountered in normal flight, the restraint device installed in a civil transport passenger seat with folding back, shall retain the child occupant in a normal position throughout two cycles of complete inversion (roll-over upside down and remain in place).

5. RESTRAINT DEVICE RELEASE

- 5.1 Operation of the restraint device and its release shall be obvious. The force required to release the restraint device shall not exceed 14 lb (6.4 kg) while a horizontal load of 45 lb (20 kg) is being applied to the system. It shall be possible to release the device with the aircraft in an inverted position.
- 5.2 The mechanism by which the child is released either from the unit or the seat, shall be accessible, and visible under emergency light conditions.

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6. INSTALLATION

Each child restraint device shall be capable of being properly installed in a civil air transport passenger seat, using only the standard adult lap belt assembly which is provided with the adult seat. Additional attachment to the seat, seat cushion, seat back, or to the aircraft shall not be necessary.

7. BODY CONTACT SURFACES

When the primary reaction of the impact load is provided by a surface supporting the child's back, that surface shall have a continuous area of at least 85 sq. in.

When the primary reaction to the impact crash load is provided by a surface supporting the front of the child's torso, that surface shall have a continuous area of at least 48 sq. in., with a minimum bowing of at least 6 in. (152.4 mm).

Each restraint device shall provide a surface for head support and for limiting head and neck rotation relative to the body during impact deceleration. Surfaces of the restraint, such as webbing or belts, shall be capable of distributing the impact load and absorbing impact energy to prevent localized injuries. There shall be no sharp edges which might puncture any inflatable emergency egress/flotation equipment or be an injury hazard.

8. LABELING

Each child seating system shall have a label permanently affixed to it. The label shall contain the following:

a) The manufacturer's name and location

However, a distributor's name may be placed on the label in place of the manufacturer's name if the distributor assumes the responsibility for all duties and liabilities imposed on the manufacturer by Federal Aviation Regulations with respect to the system.

b) Model number or name

c) Date of manufacture

d) Place of manufacture

e) Any specific recommendations and instructions relating to use

f) Weight capacity

9. SANITATION

The device shall be easily cleanable for sanitary reuse.

10. FLAMMABILITY

The flammability should be no less than flame resistance of the seat to which it is attached.

11. NOTES

- 11.1 Marginal Indicia: No phi (ϕ) symbol is used to indicate technical changes from the previous issue of this ARP because of the extensive nature of all changes.