U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: Change 1 to GUIDE SPECIFICATION FOR LIFTS USED TO BOARD AIRLINE PASSENGERS WITH MOBILITY IMPAIRMENTS

Date: 7/29/93
Initiated by: AAS-100

AC No: 150/5220-21
Change: 1

1. **PURPOSE.** This change provides for increased compatibility between certain boarding devices and commuter aircraft. The decrease in the minimum allowable riser height for variable riser stairs to the value cited in the American National Standard for Accessible and Usable Buildings and Facilities will allow devices with integral stairs to service aircraft with a larger range of door sill heights. The Change Number and date of change are carried at the top of each page. The changed material is marked by asterisks in the margin.

PAGE CONTROL CHART

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5 and 6	2/10/93	5 and 6	7/29/93

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8. TRANSPORTABILITY. If highway transportability, defined as the capability (of a self-propelled device) to be licensed for operation on public highways, is specified by the purchaser, the device shall meet the requirements of SAE ARP 1247, Paragraph 3.7.

9. SAFETY. The device shall meet the requirements of SAE ARP 1247, Paragraph 3.8. All design features intended to protect the equipment operator shall provide similar protection to the passenger(s).

a. Personnel Safety.

(1) The device shall meet the requirements of SAE ARP 1247, Paragraph 3.9, except as provided in (2) through (4) below.

(2) If highway transportability is not specified by the purchaser, the provisions of SAE ARP 1247, Paragraph 3.9.1 shall not apply.

(3) If the device is not self-propelled, the provisions of SAE ARP 1247, Paragraphs 3.9.2 through 3.9.4 shall not apply. For the purposes of this specification, motorized devices which do not transport the operator or passengers are not considered self-propelled.

(4) Risers of variable riser stairs shall be no less than four inches. The ratio between risers and treads shall be no less than .28. The angle of the stairs shall be no less than 15.5 degrees. The width of the stairway shall be no less than 27 inches. *

b. Equipment Safety. The device shall meet the requirements of SAE ARP 1247, Paragraph 3.10.

(1) Cushioning devices specified in SAE ARP 1247, Paragraph 3.10.3 shall be approved by the purchaser.

(2) A 5 pound ABC rated fire extinguisher shall be mounted on the device, at an easily accessible location.

(3) Stabilizing devices referred to in SAE ARP 1247, Paragraph 3.10.9.3 shall be painted chrome yellow, in accordance with FAA advisory circular 150/5210-5B.

10. NOISE AND VIBRATION. The device shall meet the requirements of SAE ARP 1247, Paragraph 3.11.

11. MANUALS/PUBLICATIONS.

a. The following manuals shall accompany the delivered equipment. No special format is required.

(1) Operator's handbook.

(2) Illustrated parts breakdown and list.

(3) Preventive maintenance schedule.

b. Tools and Test Equipment. The provisions of SAE ARP 1247, Paragraph 3.12.4 shall apply.

12. TRAINING. The manufacturer shall, at no additional cost, provide trained personnel at the time of delivery to place the device into operation, and provide adequate training as specified by the purchaser, not to exceed three separate 8 hour shifts, for airport and/or airline personnel in its operation and maintenance. Training shall include written operating instructions that depict the step by step operational use of the device. Written instructions shall include, or be supplemented by, materials which can be used to train subsequent new operators.

13. DESIGN AND CONSTRUCTION. The device shall meet the requirements of SAE ARP 1247, Paragraph 3.13, except as modified herein.

a. Mechanical Design. The device shall meet the requirements of SAE ARP 1247, Paragraph 3.13.1.1. The device may be operated manually or be self-propelled, as specified by the purchaser. Self-propelled units may be operated hydraulically, pneumatically, electrically, or by gasoline or liquified propane gas powered engine.

b. Electrical Design And Equipment.

(1) **General.** The device shall meet the requirements of SAE ARP 1247, Paragraph 3.13.1.2.

(a) When used for cranking engines of 30 horsepower or less, batteries referred to in SAE ARP 1247, Paragraph 3.13.1.2.1 shall be as recommended by the engine manufacturer.

(b) If highway transportability is specified, or if otherwise specified by the purchaser, lighting equipment shall meet the provisions of SAE ARP 1247, Paragraph 3.13.1.2.21. Lighting shall in all cases meet the requirements of FAA advisory circular 150/5210-5B.

(c) The device shall have grounding provisions.

(d) A suitable outdoor light shall be attached to the device to provide illumination at the entry/exit doorway of the aircraft.

(2) **Battery Powered Devices.**

(a) Batteries shall be designed to have a minimum life of 3 years when maintained according to the manufacturer's instructions. For design purposes, a frequency of use of 1000 cycles per year shall be assumed.

(b) A self contained battery charger with automatic voltage control shall be provided. The charging process shall require the operator only to connect a readily-accessible plug to a standard 110 or 220-volt receptacle, as specified by the purchaser.

(c) The battery system shall incorporate a battery condition gauge. If a low voltage condition could result in higher amperage flow and motor burnout, then the status monitoring device shall provide a time warning to the operator.

c. Hydraulic, Pneumatic Design. The device shall meet the requirements of SAE ARP 1247, Paragraph 3.13.1.3.

(1) Hydraulic fluid shall be as recommended by the manufacturers of the hydraulic system components.

(2) The materials used for each hydraulic line shall be consistent with its application.

(3) Hydraulic rams may be used to stabilize the device if all wheels remain firmly on the pavement surface.

d. Engines And Related Equipment. The device shall meet the requirements of SAE ARP 1247, Paragraph 3.13.1.4.

(1) The provisions of SAE ARP 1247, Paragraph 3.13.1.4.4 shall not apply to engines of 30 horsepower or less.

(2) Alternators used on engines of 30 horsepower or less shall be as recommended by the engine manufacturer.

(3) Oil pressure switches shall not be required on engines of 30 horsepower or less.

(4) The type of engine kill switch provided shall be approved by the purchaser.

(5) Engines used to drive other than the vehicle propulsion system shall be equipped with a tachometer which is green-lined within the correct operating RPM range and red-lined above this range, or be automatically governed to prevent over-revving.

e. Fuel System Design. The device shall meet the requirements of SAE ARP 1247, Paragraph 3.13.1.5.

(1) The provisions of SAE ARP 1247, Paragraph 3.13.1.5.1 shall not apply to engines of 30 horsepower or less.

(2) The fuel tank shall have a minimum capacity for eight hours of operation.

(3) Fuel tank fillers for engines of 30 horsepower or less shall be as recommended by the engine manufacturer, but shall include a flame-arresting cap.