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INTERNATIONAL
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AEROSPACE RECOMMENDED PRACTICE

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FOLDABLE ONBOARD WHEELCHAIRS FOR PASSENGERS WITH DISABILITIES

1. SCOPE:

This document provides design guidelines for an onboard wheelchair (OBW) used in commercial aircraft operations.

All Federal Aviation Regulations must be complied with.

2. REFERENCES:

2.1 Applicable Documents:

The following publications form a part of this specification to the extent specified herein. The latest issue of all SAE Technical Reports shall apply.

2.1.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

ARP1315B	Lavatory Installation
AIR1815	Safe Carriage of Impaired and Disabled Passengers
ARP4387	Cabin Accommodations for Passengers With Disabilities - Transport Aircraft

2.1.2 U.S. Government Publications: Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

Code of Federal Regulations 382, U.S. Department of Transportation

2.1.3 Other Documents:

Applicable Federal Aviation Regulations Parts 25 and 121

3. TECHNICAL REQUIREMENTS:

3.1 Stowage/Functional/Operational:

3.1.1 The OBW shall be foldable to minimize space requirements for stowage provisions in the aircraft. As a general guide, underseat stowage may be considered for most aircraft if overall width does not exceed 450 mm (17.7 in). Since under seat stowage height clearance varies, a 280 mm (11 in) maximum height should be used to assure that the OBW will fit under most seats. To assure adequate stowage space, each application requires a configuration study to verify proper fit and location.

NOTE: Should the weight of the OBW exceed the carry-on baggage weight of 9.1 kg (20 lb), a structural review will be required for the seat affected by the OBW stowage to assure restraint.

Stowage of wheelchairs under seat shall not be done in aisles that are used for emergency, overwing exits, or in areas where the wheelchair, upon impact, can impede or hinder evacuation.

3.1.2 The OBW shall be capable of being moved on its own wheels even when folded.

3.1.3 Operations required to unfold/fold the OBW shall be minimal.

3.1.4 All locking/unlocking devices shall be designed so that unintended operation will not occur.

3.1.5 The method of engaging and disengaging locks shall be visible, identifiable, and readily accomplished by the person or flight attendant using the wheelchair.

3.2 Design Requirements:

3.2.1 The OBW shall be capable of being pushed from the rear.

3.2.2 Nonmetallic materials shall be in compliance with aviation standards and airworthiness requirements.

3.2.3 To allow for easy operation in the cabin, it is suggested that wheels shall have a diameter of no less than 90 mm (3.5 in) and a minimum contact area of 0.46 in^2 on a hard surface with a 625 lb load applied at each wheel.

3.2.4 At least the front wheels shall be capable of swiveling to provide for ease of handling in the cabin. (All wheel caster swiveling may be desirable for "on spot turning".)

3.2.5 A brake system shall be provided to effectively lock an OBW in a parked position. This feature shall preferably block the wheels. Actuation of the brake shall not degrade or affect the stability of the OBW when occupied. It may be desirable to actuate the brake from both the front and rear end of the OBW.

3.2.6 Moveable armrests that can be moved away to permit a clear transfer of the occupant may be provided.

3.2.7 A means shall be provided to support the upper torso. A means shall also be provided above the knees to keep legs in proper position.

3.2.8 Footrest(s) shall be provided. The OBW shall be designed so that it retains its stability, even if the user applies his/her full weight onto the footrest (which is possible during transition from OBW to seat and vice versa). Footrests shall be designed to fold.

3.2.9 Foldable assist handles shall be provided at the OBW back to aid the attendant in maneuvering the chair. If these handles are designed for use as carrying handles, a second pair of foldable handles or grips shall be provided in the vicinity of the footrests.

3.2.10 The OBW shall be designed to comply with the following loads without permanent deformation.

3.2.10.1 The overall OBW shall be capable of supporting 250 kg (562 lb) load uniformly distributed over the seat bottom or as a point load on the center of the seat bottom.

3.2.10.2 Each wheel shall be capable of carrying 130 kg (290 lb).

3.2.10.3 The armrests shall be capable of carrying 130 kg (290 lb) download and 65 kg (145 lb) lateral. The loads shall be applied separately 50 to 75 mm (2 to 3 in) from the forward end of armrest.

3.2.10.4 The footrest(s) shall be capable of withstanding a download of 130 kg (290 lb).

3.2.10.5 The seatback of the OBW shall be capable of withstanding an aft load of 90 kg (200 lb) at the top of the seatback.

3.2.10.6 Assist/carrying handles shall withstand a download of 130 kg (290 lb) each.

3.2.11 The OBW also shall have a conspicuously located placard that reads "NOT FOR USE AND TO BE STOWED DURING TURBULENCE, TAXI, TAKEOFF (AND/OR) LANDING."

3.2.12 The OBW shall have a placard instructing the user on how to fold/unfold the OBW.

4. OPERATIONAL ENVIRONMENT:

4.1 The OBW shall be primarily designed for transporting passengers with disabilities while aboard aircraft only. However, this does not preclude a design that permits the use of the OBW for boarding, deplaning, and airport terminal usage.