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AEROSPACE INFORMATION REPORT

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Superseding AIR5471

Limitations of Braille for Use on Passenger Safety Instruction Cards

RATIONALE

This technical report covers technology, products, or processes which are mature and not likely to change in the foreseeable future.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE S-9 Cabin Safety Provisions Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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1. SCOPE:

This information is to aid the international air transport industry when considering the communication of safety information to sight-impaired passengers.

1.1 Purpose:

This AIR discusses the use and limitations of braille for communicating safety information to sight-impaired passengers.

2. REFERENCES:

2.1 Applicable Documents:

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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

ARP1384 Passenger Safety Information Cards

2.1.2 U.S. Government Publications: Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

United States Code of Federal Regulations, Title 14, Parts 91/121/125/135
FAA Advisory Circular AC No: 121-24, Passenger Safety Information Briefing and Briefing Cards

2.1.3 Applicable References:

Reference 1	Tactile Acuity, Aging, and Braille Reading in Long-Term Blindness, Journal of Experimental Psychology: Applied, 1996, Vol. 2, 91-106
Reference 2	Washington Talking Book Library, 2021 9th Ave, Seattle, Washington, 98121
Reference 3	Presentation on November 3, 1998, to SAE-S9 Subcommittee by Takao Kawakita, Chairman, Organizing Committee for IREI Air Safety, Renrakukai, 12-13 Hata 1-Chome Ikeda-Shi 563 Osaka-Fu, Japan
Reference 4	ARP5446, Safety Instructions for Sight-Impaired Passengers

3. BACKGROUND:

3.1 A request was made that the SAE S-9 committee address the issue of braille safety instruction cards. To that end information was gathered dealing with the issues involving braille reading. Below is a summary of that information.

4. FINDINGS:

4.1 Most sight-impaired people do not read braille.

The causes of blindness in the braille-reading population are diverse (e.g., accident, cataracts, glaucoma, rubella and other infections, premature birth, retinitis pigmentosa, and detached retina). Diabetic retinopathy is the leading cause of blindness for persons between ages 20 and 70, but few people with diabetes read braille (Reference 1). Those who become blind as a result of diabetes can suffer damage to the nerves in the fingers as well as the eyes, thereby affecting their ability to read braille. Less than 10% of the 500,000 people in the U.S. who are legally blind read braille (Reference 2). Less than 15% of the 353,000 sight-impaired people in Japan read braille (Reference 3).

4.2 Braille is not a universal language.

It is used to communicate only in the language a person understands. A braille-reading person could understand an English message only if English were understood.

4.3 Braille-reading ability declines with age.

Braille is comprised of a series of raised dots which represent a letter or syllab sighted person begins to lose ability to read words on a page at about 40 years of age due to presbyopia. Likewise, at about age 40 the average blind person starts to experience increasing difficulty in resolving gaps between the braille elements. Research shows that the loss in visual acuity and tactile sensitivity occur at about the same rate, approximately 1% per year (Reference 1).