



Department of Transportation
Federal Aviation Administration
Aircraft Certification Service
Washington, D.C.

TSO-C175

Effective
Date: 11/04/05

Technical Standard Order

Subject: Galley Carts, Containers and Associated Components

1. **PURPOSE.** This technical standard order (TSO) is for manufacturers of galley carts, containers, and associated components applying for a TSO authorization or letter of design approval (LODA). In it, we (the Federal Aviation Administration, or FAA) tell you what minimum performance standards (MPS) your galley carts, containers and associated components must first meet for approval and identification with the applicable TSO marking.

2. **APPLICABILITY.** This TSO affects new applications submitted after its effective date.

3. **REQUIREMENTS.** New models of galley carts, containers and associated components identified and manufactured after the effective date of this TSO must meet the MPS in SAE International's Aerospace Standard (AS) 8056, *Minimum Design and Performance of Airplane Galley In-Flight Carts, Containers, and Associated Components*, dated November 2004, as amended by appendix 1 of this TSO.

a. **Functionality.** This TSO's standards apply to equipment used to serve aircraft cabin occupants with food, beverages or other products.

b. **Deviations.** We have provisions for using alternate or equivalent means of compliance to the criteria in the MPS of this TSO. If you invoke these provisions, you must show that your equipment maintains an equivalent level of safety. Apply for a deviation under Title 14 of the Code of Federal Regulations (14 CFR) § 21.609.

4. **MARKING.**

a. Mark at least one major component permanently and legibly with all the information in 14 CFR § 21.607(d), except for:

- 14 CFR § 21.607(d)(3). Use the date of manufacture *and* serial number.

b. Mark the following permanently and legibly, with at least the manufacturer's name, subassembly part number, and the TSO number:

- (1) Each component that is easily removable (without hand tools),

(2) Each interchangeable element, and

(3) Each subassembly of the article that you determined may be interchangeable.

c. Lastly, (except for associated components) permanently and legibly mark each article with the design load factors used in the design loading cases for approval of this article.

5. APPLICATION DATA REQUIREMENTS. As a TSO manufacturer-applicant, you must give the FAA aircraft certification office (ACO) manager responsible for your facilities a statement of conformance, as specified in 14 CFR § 21.605(a)(1) and one copy each of the following technical data to support our design and production approval. (Under 14 CFR § 21.617(a)(2), LODA applicants submit the same data through their civil aviation authority:)

a. Operating instructions and equipment limitations in an installation/instruction manual (IM), sufficient to describe the equipment's operational capability. Describe any deviations in detail. If needed, identify equipment by part number, version, revision, and criticality level of software, classification for use, and environmental categories.

b. Installation procedures and limitations in an IM, sufficient to ensure that the galley carts, containers and associated components when installed according to the installation procedures, still meet this TSO's requirements. The limitations must identify any unique aspects of the installation. Finally, the limitations must include a note with the following statement:

The conditions and tests for TSO approval of this article are minimum performance standards. Those installing this article, on or in a specific type or class of aircraft, must determine that the aircraft installation conditions are within the TSO standards. TSO articles must have separate approval for installation in an aircraft. The article may be installed only according to 14 CFR part 43 or the applicable airworthiness requirements.

c. Schematic drawings of the installation procedures or interface control drawing.

d. List of components, by part number, that make up the galley cart, container or associated component complying with the standards in this TSO. Manufacturers should include vendor part number cross-references, when applicable.

e. A component maintenance manual (CMM), covering periodic maintenance and repair, for the continued airworthiness of installed galley carts containers and associated components. Instructions should include recommended inspection intervals and service life.

f. Material and process specifications list.

g. The quality control system (QCS) description required by 14 CFR §§ 21.143 and 21.605(a)(3), including functional test specifications. The QCS tests each production article to ensure compliance with this TSO. (Not required for LODA applicants.)

h. Manufacturer's TSO qualification test report.

i. Nameplate drawing with the information required by paragraph **4** of this TSO.

j. A list of all drawings and processes (including revision level), to define the article's design. For a minor change, follow the directions in 14 CFR § 21.611(a).

6. MANUFACTURER DATA REQUIREMENTS. Besides the data given directly to us, have the following technical data available for review by the responsible ACO or civil aviation authority:

a. The functional qualification specifications for qualifying each production article to ensure compliance with this TSO.

b. Corrective maintenance procedures within 12 months after TSO authorization.

c. Schematic drawings.

d. Material and process specifications.

7. FURNISHED DATA REQUIREMENTS. If furnishing one or more articles to one entity (such as an operator, repair station, aircraft manufacturer or modifier), provide the following for each article manufactured under this TSO:

a. One copy of the data in paragraphs **5a** through **5e** of this TSO.

b. Add any other data needed for the proper installation, certification, use, and continued airworthiness, of the galley cart, container or associated component.

8. HOW TO GET REFERENCED DOCUMENTS.

a. Order copies of SAE documents from SAE International, 400 Commonwealth Drive, Warrendale PA 15096-0001. Telephone (724) 776-4970, fax (724) 776-0790. You can also order copies online at www.sae.org.

b. Order copies of 14 CFR part 21, Subpart O, from the Superintendent of Documents, Government Printing Office, P.O. Box 37154, Pittsburgh PA 15250-7954, or call 866-512-1800.

Fax (202) 512-2250. You can also get copies from the GPO website online at www.access.gpo.gov. Select "Access," then "Online Bookstore." Select "Aviation," then scroll to "Code of Federal Regulations."

c. You can find a current list of technical standard orders on the FAA Internet website Regulatory and Guidance library at www.airweb.faa.gov/rgl. You will also find the TSO Index of Articles at the same site.

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APPENDIX 1. MPS FOR GALLEY CARTS, CONTAINERS and ASSOCIATED COMPONENTS

This TSO's standards are set forth in the industry standard, SAE AS 8056, *Minimum Design and Performance of Airplane Galley In-Flight Carts, Containers, and Associated Components*, dated November 2004. We modified this applicable standard as follows:

FAA Modifications to SAE AS 8056

<i>AS 8056 section:</i>	<i>Action:</i>
3.2.1, Materials and Materials Control	DELETE "...or experience."
3.2.1.2, Materials	CHANGE ALL TO: "Each batch, roll or sheet of non-metallic materials or finished metal (including finishes or decorative surfaces applied to the materials) shall meet the applicable test criteria prescribed in 14 CFR part 25, Appendix F, parts I, IV, V and VI."
3.2.5, Interface Clearances	ADD AT END: "...and shall account for the equipment and aircraft tolerances."
3.3.5, Material Strength Properties and Material Variability	ADD after first paragraph: "The applicable specifications are Metallic Materials Process Development and Standardization (MMPDS, formerly MIL Handbook-5) and MIL Handbook-17."
3.5, Fire Properties	ADD new sub section after 3.5.2: "Flame Propagation: thermal /acoustic insulation material installed on the equipment shall meet the flame propagation requirements of 14 CFR § 25.856(a) when tested per Appendix F, part VI or other FAA approved equivalent test requirements. This requirement does not apply to "small parts" as defined in 14 CFR part25, Appendix F part I."
3.6, Fire Containment	CHANGE 14 CFR 25.853 to 14 CFR § 25.853(h).
4.1, General	ADD after 1 st paragraph: "We encourage TSOA applicants to validate finite element models based on critical testing when such an approach is taken to substantiate design changes to ensure compliance with 14 CFR § 25.307."

APPENDIX 1. MPS FOR GALLEY CARTS, CONTAINERS and ASSOCIATED COMPONENTS, continued

<i>AS 8056 section:</i>	<i>Action:</i>
4.2, Structural	ADD between the 2 nd and 3 rd paragraph: “In order to maintain a maximum door deflection of 2 inches (50 mm), the allowable retaining device envelope and the minimum retaining device engagement area shown in Figures 4 and 5 shall be developed by testing for both the primary and secondary retaining devices acting independently.”
4.5, Fire Properties	ADD new subsection after 4.5.2, Flame Propagation: “Thermal/Acoustic insulation materials shall be demonstrated to comply with the flame propagation requirements of 3.5.”
4.6, Fire Containment	ADD between the 6 th and 7 th paragraph: “For air chilled carts, the test procedure step that reads “ <i>Place the cart into the galley structure so that it is connected or attached to the chilled air distribution ducts with the designed airflow volume. Circulate air through the cart at the designated airflow rate</i> ” may be substituted as follows: “Simulate the galley seal at the cart/galley interface and circulate air through one of the cart air openings at a flow rate of 65 (+0, -10) cfm and ambient temperature of 72 deg F (+10, -10). It is acceptable to increase the airflow rate as necessary to meet a manufacturer's requirements.”
5.1, Interface Control Drawing	ADD AT END: “For air-chilled carts, identify the flow rate of air (e.g., 100 cfm) circulated through the cart during the fire containment test.”