



SURFACE VEHICLE RECOMMENDED PRACTICE

J3058™

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Superseding J3058 NOV2016

Ambulance Interior Storage Compartment Integrity

RATIONALE

This SAE Recommended Practice was developed by members of the SAE Truck Crashworthiness Committee in support of the ambulance industry's need to apply science to the design and testing of patient compartment interior Storage Compartments such as cabinets, drawers, or refillable supply pouch systems. The Recommended Practice was validated collaboratively by industry and government partners through extensive testing funded and managed by the National Institute for Occupational Safety and Health, the Department of Homeland Security and the Ambulance Manufacturers Division of the NTEA. Input loading for the dynamic testing was generated using the vehicle specific crash pulses described in SAE J2917, SAE J2956 and SAE J3044, respectively. An independent analysis of the testing methodology and resulting data was performed by government and private members of the automotive testing community.

SAE J3058 has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

This SAE Recommended Practice describes the dynamic testing procedures required to evaluate the integrity of patient compartment interior Storage Compartments such as cabinets, drawers, or refillable supply pouch systems when exposed to a frontal, side or rear impact (i.e., a crash impact). Its purpose is to provide component manufacturers, ambulance builders, and end-users with testing procedures and, where appropriate, acceptance criteria that, to a great extent, ensure interior Storage Compartments or systems meet the same performance criteria across the industry. Descriptions of the test set-up, test instrumentation, photographic/video coverage, test fixture, and performance metrics are included.

2. REFERENCES

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-806-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J211-1 Instrumentation for Impact Test - Part 1: Electronic Instrumentation

SAE J211-2 Instrumentation for Impact Test - Part 2: Photographic Instrumentation

SAE J2917 Occupant Restraint and Equipment Mounting Integrity – Frontal Impact Ambulance Patient Compartment

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Documents

Document Sharing Hub

SAE J2956 Occupant Restraint and Equipment Mounting Integrity – Side Impact Ambulance Patient Compartment

SAE J3044 Occupant Restraint and Equipment Mounting Integrity – Rear Impact Ambulance Patient Compartment

3. DEFINITIONS

3.1 TEST ANALOG/DEVICE

A soft bag filled with metal shot made to replicate all or part of the maximum design weight limit designated for the storage compartment to be tested.

3.2 STORAGE COMPARTMENT

A cabinet, drawer, pouch style system, or other means used to contain and secure EMS supplies, tools, medical devices or other equipment within an enclosed area. .

3.3 SLIDING DOOR

Any door that is restrained but free to slide. See Figure 1 for illustration.

3.4 HINGED DOOR

Any door that rotates to open/close about a hinged point, located in the patient compartment. This could be a traditional cabinet or a pouch style storage device. See Figure 1 for illustration.

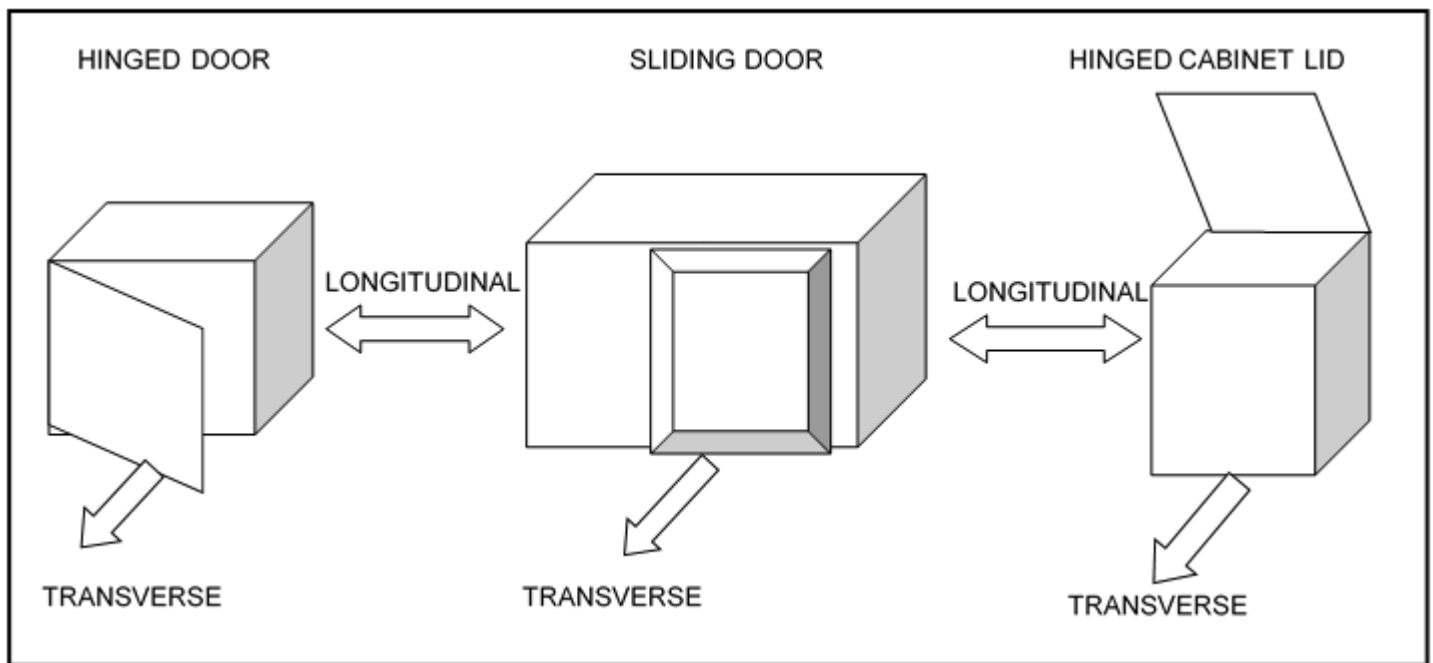


Figure 1 - Door style and load application orientation for interior cabinets.

3.5 “Fully Latched Position” is defined as the last or fully closed position on the striker(s).

3.6 “Secondary Latched Position” is defined as the first latched or partially closed position on the striker assembly.

3.7 “Striker” means a mechanical device with which the latch engages on the opposing member of the body framework.

3.8 “Latch” means a mechanical device used to position the door in a closed position relative to the body framework with provision for controlled release (or operation).

- 3.9 “Transverse Load” is a load applied in the direction of the door opening, perpendicular to the door surface, regardless of the storage device’s mounting location within the vehicle. See Figure 1 for illustration.
- 3.10 “Longitudinal Load” is a load applied parallel to the door face, regardless of the storage device’s mounting location within the vehicle. See Figure 1 for illustration.
- 3.11 “Mounting Hardware”: Fasteners and other associated components that are used to affix a storage compartment to the vehicle wall, floor or ceiling.
- 3.12 “Fracture” means cracking or tearing of the storage compartment structure, storage compartment mounting hardware or storage compartment latching hardware.
- 3.13 “Weight Capacity” means the maximum weight permitted to be stored in the storage compartment as defined by the manufacturer.
- 3.14 “Load Path” means a series of load bearing components.
- 3.15 “Load Bearing” means any component of the interior storage compartment expected to absorb loading during an impact event.
- 3.16 “Riser Shelf” means a device that positions the test analog vertically within the storage compartment.
- 3.17 “Hinged Cabinet Lid” any cabinet door on a horizontal face that rotates to open/close about a hinged point, located in the patient compartment. See Figure 1 for illustration.
- 3.18 “Length” means the greatest horizontal dimension of a storage compartment.

4. DYNAMIC TEST REQUIREMENTS

Storage compartments shall be tested in accordance with test conditions and applicable procedures outlined in SAE J2917, Occupant Restraint and Equipment Mounting Integrity – Frontal Impact Ambulance Patient Compartment, and/or SAE J2956, Occupant Restraint and Equipment Mounting Integrity – Side Impact Ambulance Patient Compartment and/or SAE J3044, Occupant Restraint and Equipment Mounting Integrity – Rear Impact Ambulance Patient Compartment. The Storage compartments will then be evaluated in accordance with sections 4 and 8 of this document.

5. TEST CONDITIONS

The following conditions apply:

- 5.1 Due to the large number of mounting locations possible for each interior storage compartment, these tests shall be conducted on a sled system and mounted appropriately to simulate the intended mounting surface as best as possible. The following four examples should be considered:
 - 5.1.1 If the storage compartment is designed to be mounted on the side wall of an ambulance patient compartment, the appropriate transverse load would be generated using SAE J2956. Whereas, the appropriate longitudinal load would be generated using SAE J2917. See Figure 2, cabinets C and E.
 - 5.1.2 If the storage compartment was intended to be mounted on the rear wall of an ambulance patient compartment, the appropriate transverse load would be generated using SAE J2917, while the appropriate longitudinal load would be generated using SAE J2956. See Figure 2, cabinet D.
 - 5.1.3 If the storage compartment was intended to be mounted on the front wall of an ambulance patient compartment, the appropriate transverse load would be generated using SAE J3044, while the appropriate longitudinal load would be generated using SAE J2956. See Figure 2, cabinet A.