



1 July 2014

CHANGE NOTICES ARE NOT CUMULATIVE AND SHALL BE RETAINED  
UNTIL SUCH TIME AS THE STANDARD IS REVISED

Federal Specification for the Star-of-Life Ambulance  
KKK-A-1822F  
Dated 1 August 2007  
Change Notice 6

The following changes, which form a part of FED-STD KKK-A-1822F, dated 1 August 2007, are approved by the General Services Administration, for use by all agencies.

If you have technical questions regarding this change notice, please contact John McDonald at [jmcdonald@gsa.gov](mailto:jmcdonald@gsa.gov).

Daniel Buckingham  
Chief Vehicle Engineering Branch (QMDAA)  
Center For Automotive Acquisition  
General Services Administration

## **2.2 OTHER PUBLICATIONS**

Delete AMD STANDARD 002 – BODY DOOR RETENTION COMPONENTS TEST

### **3.5.2 PAYLOAD CAPACITY.**

Delete the existing paragraph and replace it with the following:

The ambulance shall not be operated in an overloaded condition. EMSPs should determine that the actual load, to be placed on the vehicle, does not exceed the total usable payload as manufactured. Any additional items attached to, or carried on the vehicle by the EMSP will reduce the combined weight of occupants and Cargo/Equipment that comprise the total usable payload. Additional weight added, resulting from specified options, will reduce the available payload per vehicle.

Occupant weight shall be accommodated at 175 lbs. for each designated patient and seating position.

The required minimum payload (patients, passengers and cargo/equipment) per vehicle without optional permanently mounted equipment shall be as follows:

1. Single rear wheeled, van ambulances (Type II)—1500 lbs.
2. Dual rear wheeled, modular ambulances (Type I or III)—1750 lbs.
3. Additional duty modular ambulances (Type I AD or III AD)—2,250 lbs.

Each ambulance's payload capacity, horizontal, lateral, and vertical CG shall be determined. Horizontal and vertical shall be determined by completing an NTEA UltraMod spreadsheet (available at [www.ntea.com](http://www.ntea.com)). A copy of the UltraMod spreadsheet and lateral calculation shall be included in the handbook of instructions. The following shall be shown on the calculations:

1. Completed vehicle at curb weight
2. 175 pounds at the lateral, horizontal and vertical center of each patient location and at the design H-Point of each designated seating position
3. The maximum remaining Cargo/Equipment capacity located at the lateral, horizontal and vertical dimensional center of the patient compartment that does not result in weights that exceed the vehicle's weight rating capacities.

The total usable Cargo/Equipment capacity value of Figure 2, item 10 shall be displayed on the certification and payload signage as shown in Figure 1. The label shall be located in a conspicuous location in the ambulance.

#### **3.7.1.1 WARNING INDICATORS**

Delete the existing paragraph and replace it with the following

The electrical system shall incorporate a warning light panel located in the driver's compartment. It shall provide indicator lights for:

1. Any passenger or equipment external compartment door that is not closed
2. Cab entry doors that are not closed (when available from the OEM).
3. Extended devices (flood lights, etc).

The “Door/Equipment Open” indicator in the driver’s compartment can be either an LED warning light with at least 0.2 sq. in. of lighted surface or an electronic text message visible in all ambient lighting conditions

Electronic displays that are visible in all ambient light, that projects narrative information may be used in lieu of discrete, colored, indicator/ warning lights provided the projected message is at least as visible as the basic required warning light.

#### **3.10.4 PATIENT COMPARTMENT INTERIOR DIMENSIONAL PARAMETERS.**

Delete paragraph 3.10.4.b

Replace it with the following paragraph:

b. The compartment shall provide a minimum of 12" of clear aisle walkway between the edge of the primary patient cot and base of the nearest vertical feature measured along the floor. Each end of the walkway shall provide access to a means of egress.

#### **3.10.5 BODY, GENERAL CONSTRUCTION.**

Delete the existing paragraph and replace it with the following

For modular construction, the body shall be all welded aluminum or, other lightweight, inherently corrosion resistant materials of equal, or greater, strength. The exterior of the body shall be finished smooth with a symmetrical radius to corners and edges, and shall include doors and windows specified herein. Ambulance body, as a unit, shall be designed and built to provide impact and patient compartment penetration resistance and shall be of sufficient strength to support the entire weight of the fully loaded vehicle on its top or side, if overturned, without separation of joints or permanently deforming roof bow or reinforcements, body posts, doors, stringers, floor, inner linings, outer panels, rub-rails, and other reinforcements. Wood, or wood products, shall not be used for structural framing.

The roof structure, liner, and outer skin or cap shall be designed and constructed to prevent separation. Any absorbent material such as carpeting, fabric, or inside/outside plastic type carpeting, etc. that resists cleaning and decontamination shall not be used.

#### **3.10.8 DOORS**

Add Item Seven to the paragraph

7) Bottom steps at the entry/exit of doorways of the patient compartment shall be at least the width of the doorway internal frame opening.

#### **3.10.12 STEP WELL (SIDE DOOR)**

Delete the existing paragraph and replace it with the following

When a side entry door is furnished, steps shall be provided in the door openings. Step well shall be the enclosed two-step type. Height of the bottom step shall not exceed 22". Step wells shall be lighted, and all step surfaces shall be constructed with anti-slip material

### **3.11.1.2 WASTE AND SHARPS DISPOSAL.**

Delete the existing paragraph and replace it with the following:

The following shall be furnished: A trash receptacle compartment, with closure over opening, for general waste shall be furnished with a plastic/rubber trash can and disposable plastic liners, with 12 spare liners. The trash compartment shall be accessible to the EMSP seat. A sharps receptacle compartment/ storage or a commercially available container mounted in a convenient area shall be furnished for retention of a sharps container that is compliant with OSHA 1910.1030

### **3.15.3 CONFIGURATION WORKSHEET.**

Add the following text before, Reference Section 3.0 – REQUIREMENTS

The Department of Homeland Security is developing a guidebook focused on helping EMS provider organizations design and specify ambulance patient compartments, which will include design criteria and best practices based on human performance research, human factors engineering design standards, and EMS community requirements. This document is scheduled to be released in late 2014. Practitioners should consider this document when designing ambulances in conjunction with standards.

Until the publication is finalized, the following guidelines can be considered when completing the Configuration Worksheet:

Seats and restraints should be designed to allow all EMSPs to reach common and critical equipment with at least one hand at a maximum functional reach from a seated and restrained position. This includes a 5<sup>th</sup> female EMSP with a maximum functional reach of 43.2 inches as measured from the junction of the seat pan and seat back to the thumb tip of the arm fully extended parallel to the floor while leaning at a maximum 45° degree angle.

Seats and restraints should be designed to allow all EMSPs to reach patients with at least one hand at a maximum functional reach from a seated and restrained position. This includes a 5<sup>th</sup> female EMSP with a maximum functional reach of 43.2 inches as measured from the junction of the seat pan and seat back to the thumb tip of the arm fully extended parallel to the floor while leaning at a maximum 45° degree angle. (see figure 6)

Exterior and interior access handrails should be constructed of or covered with a slip-resistant noncorrosive material that can be sanitized and cleaned.

Restraint systems should be as follows:

1. The restraint system's unfastening mechanism should require only one motion or click with only one hand to operate

2. The restraint system's fastening mechanism should require minimal steps to operate
3. The restraint system should be adjustable to prevent pressure on the throat or other sensitive areas.
4. Fully exposable for sanitation and cleaning

Surface materials and their colors used in the patient compartment should allow EMSPs to distinguish clean from soiled surfaces.

Handholds that minimize striking hazards should be installed over each walking path down the length of the patient compartment.

#### **4.4.1 TEST CRITERIA.**

Delete the existing paragraph and replace it with the following:

The ambulance shall be prepared for operation in accordance with OEM's recommendations, and AMD Standards 001 & 003-025. The ambulance shall successfully complete all parts of the quality conformance inspection.

#### **4.2.1 QUALITY CONFORMANCE INSPECTION.**

Delete the existing paragraph and replace it with the following:

Quality conformance inspection applies to all ambulance(s) offered for acceptance under the contract.

Quality conformance inspection shall consist of:

1. Workmanship inspection
2. Operational checks
3. Examination of the ambulance handbook
4. Verification of successful completion of AMD tests 001 & 003-025

#### **4.3.3 CRITERIA OF CERTIFICATIONS.**

Delete the existing paragraph and replace it with the following:

Each ambulance constructed shall be tested by the FSAM to demonstrate compliance with:

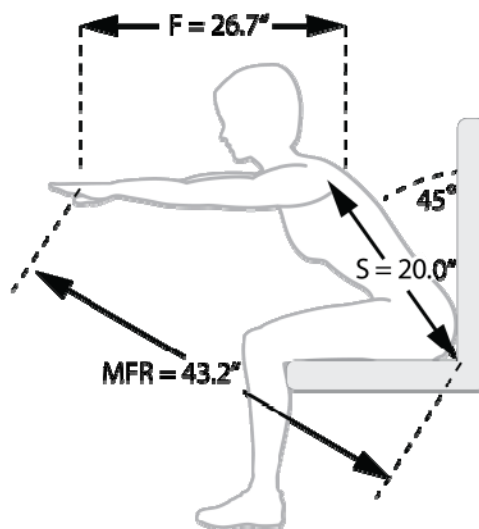
AMD Standards 5, 9, 10, 15, 21 & 25

This is in addition to the initial type testing certification required.

## Add FIGURE 6

**Maximum Functional Reach** Maximum functional reach is measured from the center point of the junction of the seat pan and seat back to the thumb tip where the arm is fully extended parallel to the floor and the torso is leaning forward at a 45° angle. Maximum functional reach is calculated using the following formula, where F = functional reach and S = seat to shoulder sitting height.

As an example using anthropometric data from MIL-STD-1472G, the maximum functional reach for a 5<sup>th</sup> percentile female, illustrated below is calculated using the seat (bottom of buttocks) to shoulder torso length (20.0 inches [508 mm]) leaned forward at a 45° degree angle and a functional reach as measured from the shoulder blade to thumbtip (26.7 inches [677 mm]) for a maximum functional reach of 43.2 inches (1097 mm).



**Maximum Functional Reach for a 5<sup>th</sup> Percentile Female**