CAAS GVS V3.0 - PROPOSED CHANGES FOR PUBLIC COMMENT

January 7, 2022

B.1 APPLICABLE DOCUMENTS

Delete the following:

AMD 026 Ambulance Emergency Lighting System Configuration

Add the following:

SAE J845 Optical Warning Devices for Authorized Emergency Vehicles

C.5.8.3 FLOOR HEIGHT

Delete the existing text and replace it with the following:

The finished floor (loading) height shall be compatible with the litter fastener assembly system specified by the purchaser for the cot system(s) they intend to utilize per C.12.6.

C.6.1 CURB WEIGHT

Add the following sentence after the first sentence:

Permanently mounted equipment (optional or standard) is considered to be part of the curb weight.

C.6.2 PAYLOAD CAPACITY

Delete the existing text and replace 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.

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

The required minimum payload (patients, passengers and cargo/non permanently mounted equipment) per vehicle shall be as follows:

1. Van ambulances (Type II) — 1,500 lbs.
2. Modular ambulances (Type I or III) — 1,750 lbs.
3. Additional duty modular ambulances (Type I AD or III AD) — 2,250 lbs.

Each ambulance's payload capacity shall be determined by completing a National Truck Equipment Association (NTEA) Vehicle Center of Gravity and Axle Weight Calculator (available at www.ntea.com). A copy of the results shall be included in the handbook of instructions. The following shall be shown on the document:

1. Completed vehicle at curb weight.
2. 175 pounds at the horizontal center of each patient location and at each seated position.
3. The maximum remaining Cargo/Equipment capacity located at the horizontal center of the patient compartment that does not result in weights that exceed the vehicle's GVWR, front or rear GAWR.

Certification and payload signage as shown in Appendix 1, Figure 1 shall include the total usable cargo/equipment capacity value (Appendix 1, Figure 3, Item 8). The label shall be located in a conspicuous location in the ambulance

C.8.1.1 WARNING INDICATORS

Delete existing text in item #2 and replace with the following:

2. Module Disconnect switch per C.8.5.4

C.8.5.3 INTERNAL 12-VOLT DC POWER

Add the following sentence:

Purchaser shall determine outlet type.

C.8.5.5 ANTI-THEFT DEVICE

Add the following sentence:

Device shall automatically engage when vehicle is placed in park and shall not require any other action from the operator to activate.

C.9.2 AMBULANCE EMERGENCY LIGHTING

Delete the existing text and all subsections and replace with the following (C.9.2-C.9.2.8):

C.9.2 AMBULANCE EMERGENCY LIGHTING

An optical emergency lighting system shall provide the ambulance with 360° of conspicuity for safety during its missions.

The optical warning system shall include an upper and a lower warning level of optical warning devices. The optical power requirements for each level shall be met by the warning devices in that particular level without consideration of the warning devices in the other level.

The maximum continuous electrical load for the optical warning system shall not exceed 40 Amperes at 12.8 VDC.

The system shall not impair the effectiveness of the ambulance's exterior lighting with conformity to the requirements of FMVSS No. 108.

C.9.2.1 EMERGENCY LIGHTING SYSTEM CONFIGURATION.

For the purposes of defining and measuring the required optical performance, the upper and lower warning levels shall be divided into four warning zones.

The four warning zones shall be designated A, B, C, and D in a clockwise direction, with zone A to the front of the ambulance.

Each optical warning device shall be installed and connected to the ambulance electrical system in accordance with the requirements of this specification and the requirements of the manufacturer of the device.

C.9.2.2 PHOTOMETRIC, CHROMATICITY, AND PHYSICAL REQUIREMENTS

The flash rate of any optical source shall be between 60 and 240 flashes per minute.

The optical warning light system shall have sufficient optical sources on each level and in each zone so that failure of a single optical source does not create a photometric measurement point in the zone as the failed optical source without a visible warning signal at a distance of 100 ft from the geometric center of the ambulance.

The optical energy provided by non-flashing optical sources, or the steady burning part of an optical flash characteristic, shall not be included in the calculations of the zone's total optical power.

Permissible optical source colors or combinations of colors in each zone, within the constraints imposed by applicable laws and regulations, shall be as shown in Table 2.

Table 2 Zone Colors

Color	Calling for Right-of-Way	Blocking Right-of-Way
Red	Any Zone	Any Zone
Blue	Any Zone	Any Zone
Yellow	Any zone except A	Any Zone
White	Any zone except C	Not Permitted
Green	Any zone	Any zone

C.9.2.3 UPPER-LEVEL OPTICAL WARNING DEVICES

The upper-level optical warning devices shall be mounted as high as practicable, but not over 102 in. at the optical center.

To define the clearance lines of the ambulance, the optical center of the upper level optical warning devices shall be mounted as high and as close to the corner points of the ambulance as is practicable.

C.9.2.4 LOWER-LEVEL OPTICAL WARNING DEVICES

One or more lower-level optical warning devices shall be visible from the front and the side of the ambulance.

To define the front clearance lines of the vehicle, the optical center of the lower level optical warning devices in the front of the vehicle shall be mounted on or forward of front wheel centerline and as close to the front corner points of the ambulance as is practicable.

The optical center of the device(s) shall be between 18 in and 48 in above level ground.

For each operating mode, the combined optical power of all the optical sources shall meet or exceed the zone's total optical power requirements shown in Table 1.

Table 1 Optical Power Requirements

		Mode of Operation					
		Calling for Right-of-Way			Blocking-Right-of-Way		
Zone	Level	H Total	At Any H Point	At Any Point 5 Degrees Up or 5 Degrees Down from H	H Total	At Any H Point	At Any Point 5 Degrees Up or 5 Degrees Down from H
A	Upper	1,000,000	10,000	3,500	400,000	10,000	3,500
B	Upper	200,000	8,000	3,500	200,000	8,000	3,500
C	Upper	400,000	10,000	3,500	800,000	10,000	3,500
D	Upper	200,000	8,000	3,500	200,000	8,000	3,500
A	Lower	150,000	3,750	1,300	150,000	3,750	1,300
B	Lower	75,000	1,875	650	75,000	1,875	650
C	Lower	0	0	0	0	0	0
D	Lower	75,000	1,875	650	75,000	1,875	650

Notes:
1. All values are in candela-seconds/minute.
2. H = Horizontal plane passing through the optical center.
3. The values in the H Total columns are the total of 19 data point values for each light, with data points on the boundary between zones counted in both zones.
4. No individual photometric measurement point shall be less than that shown in table 1.

C.9.2.5 PHOTOMETRIC TEST PROCEDURES FOR OPTICAL DEVICES

All optical warning devices and components shall be tested in conformance with SAE J845, *Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles.* Testing shall be performed by, or on behalf of, the device manufacturer to ensure compliance with the requirements in this specification.

The results of the testing shall be used to determine compliance with this specification, and all required photometric data shall be available, upon request, from the optical warning device manufacturer.

C.9.2.6 PHOTOMETRIC MEASUREMENT POINTS

Measurements shall be made along the horizontal plane that passes through the optical center, beginning at the optical center and repeated at 5-degree intervals to the left and to the right of the optical center throughout the active horizontal angle of light emission of the optical source.

Measurements shall be repeated at 5 degrees up and 5 degrees down from the horizontal plane that passes through the optical center, beginning at a point on the vertical plane passing through the optical center and repeated at 5-degree intervals to the left and to the right of this vertical plane throughout the active horizontal angle of light emission of the optical source.

C.9.2.7 COMPLIANCE DOCUMENTATION

The ambulance manufacturer shall demonstrate compliance of the optical warning system optical power requirements by one of the following methods:

(1) Certification that the optical warning devices were installed within the geometric parameters specified by the manufacturer of the devices and referencing the certification by the optical warning device manufacturer that the system meets or exceeds the minimum optical power requirements for the specified zone and level.

(2) Certification that a mathematical calculation based on photometric test reports for individual optical sources provided by the manufacturer of the devices and performed by the FSAM to demonstrate that the combination of individual devices as installed meets the requirements for the specified zone and level.

C.9.2.8 SWITCHING ARRANGEMENTS

At least one master optical warning system switch that energizes all the optical warning devices shall be provided.

The optical warning system shall be capable of at least two separate signaling modes during emergency operations.

One mode shall signal to drivers and pedestrians that the ambulance is responding to an emergency and is calling for the right-of-way.

One mode shall signal that the ambulance is stopped and is blocking the right-of-way.

C.10.8.3 FUEL FILL SPLASH PLATES

Delete this requirement.

C.11.8 DOORS

Add the following text to the bottom of the existing text:

1. All ambulance body doors shall be equipped with not less than 250 sq. in. of safety glass area per door.

2. Each door shall have effective compression or overlapping seals to prevent leakage of exhaust fumes, dust, water, and air.

3. Patient compartment doors on modular bodies shall be flush or near flush style and constructed as follows:
   a) Shall be full box type construction.
   b) Have removable inner panel.
   c) Inner panel shall be finished with a durable, washable type material.
   d) Shall include trim moldings around all unfinished, exposed edges.

4. A reflective device shall be furnished in any color meeting the reflector or conspicuity systems requirements of FMVSS 108.
   a) Have at least 60 sq. in. of total reflective area.
   b) Shall be installed on the interior of all patient compartment entry doors.
   c) The reflective device shall be so positioned as to provide maximum visibility when the doors are in the fully open position.

C.12.4. PATIENT COMPARTMENT SEATING

Modify the last sentence in Paragraph 3 to read:

Patient compartment seats shall comply with applicable provisions of OSHA 29 CFR 1910.1030 (requirements referring to surfaces).

C.12.6 LITTER FASTENER AND ANCHORAGES

Delete the existing text in paragraph 1 only and replace with the following:

A complete litter fastener assembly shall be furnished. The installed litter fastener device for wheeled cots shall meet the performance requirements of SAE J3027. The litter fastener device shall be installed according to the litter fastener's manufacturer's instructions.

When a bariatric stretcher or stretcher based neonatal transport system is used, it should be compatible with this installed fastener.

Refer to Section C.19 for certification requirements.

C.13 OXYGEN, MAIN SUPPLY
Add the following sentence to Para 3:

Oxygen tank(s) shall be mounted in a fixed device that meets the performance requirements and is certified to AMD 028 and SAE J3043 per C.12.1.1.

C15.4 SIREN-PUBLIC ADDRESS
Delete last sentence and replace with following:

The siren system shall be compliant with the current edition of SAE J1849 Emergency Vehicle Sirens.

D.3 CRITERIA OF CERTIFICATIONS
Delete the last sentence of the first paragraph and replace with the following:

The scope of accreditation shall include AMD tests 005-025, 28 and the annex.

D.3.1 CRITERIA OF CERTIFICATIONS
Delete the existing text and replace with the following:

Each ambulance constructed shall be tested by the FSAM to demonstrate compliance with AMD STM 5, 9, 10, 15, 21, & 25 and the annex. This is in addition to the initial type testing certification required.

D.6.1 TEST CRITERIA
Delete the existing text and replace it with the following:

The ambulance shall be prepared for operation in accordance with OEM's recommendations, and AMD STM 005-025 & 28 and the annex. The ambulance shall successfully complete all parts of the quality conformance inspection

F.6.4.4 ANTI-THEFT DEVICE (REMOUNT)
Add the following sentence:

Device shall automatically engage when vehicle is placed in park and shall not require any other action from the operator to activate.

F.6.4.5 STANDARD MANDATORY MISCELLANEOUS EQUIPMENT (REMOUNT)
Add the following complete section:

Each ambulance shall be equipped with, but not limited to the following:

1. Fire extinguishers: Two, (ABC dry chemical or carbon dioxide) minimum 5 lb. unit, with a quick release bracket. One shall be located in the driver's cab, the other in the patient compartment. Fire extinguisher mounts shall meet the requirements of SAE J3043 (Ambulance Equipment Mount Device or Systems) per 12.1.1.

2. "No Smoking Oxygen Equipped" and "Fasten Seat Belts" signs: Conspicuously placed in the driver's cab and patient compartment.

3. Backup alert alarm, (audible warning device) activated when the vehicle is shifted into reverse, which cannot be disabled or reset by the operator. Device shall be rated for 97 dB-a at 4' (per SAE standards).

3.A.3.1 QUALITY CONFORMANCE INSPECTION
Add the following additional items in sequence to paragraph #1:

4. Verification of successful completion of AMD tests 005-025 and 28 and the Annex.
5. Verification of successful completion of SAE standards, recommended practices and information reports J3026, J3027, J3043, J3057, J3058, J3102.

3.C CONFIGURATION WORKSHEET
Replace item #10 with the following:

Per C.6.2, the average weight of an occupant is calculated at 175 lbs. per GSA. If your average occupant weight is greater, specify here:

3.C CONFIGURATION WORKSHEET

Replace item #30 with the following:

If a specific emergency lighting system is required in Section 3.8.2, list the emergency lighting manufacturer(s) to be used. State if there are specific state or local jurisdiction requirements (such as California steady burning red, etc.) The alternate approved lighting systems are NFPA 1901 and 1917.

If the length of the ambulance is over 25 feet or the optical center of the upper warning lights is over 102 in, utilize the alternate approved lighting systems listed above.

APPENDIX 1 NEW AMBULANCE CERTIFICATION STICKER AND REQUIRED DOCUMENT TEMPLATES

Replaces Figures #1-3 with V3.0 versions

APPENDIX 2 AMBULANCE REMOUNT COMPLIANCE STICKER AND REQUIRED DOCUMENT TEMPLATES

Replaces Figures #1-3 with V3.0 versions

End of proposed changes