Federal Specification for the Star-of-Life Ambulance

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Why Was “K” Developed?

- DOT requested it in 1972
- It was estimated that there were 28,000 ambulances in service
- 1,200 were Federally owned
How Long Has the “K” Std been around?

- Over 40 Years
When did the first “K” Standard go into effect?

- 2 January 1974
- Covered Types I, II & III
- 1,000 lb. Payload
- Gasoline Engines
- Requires Squad Bench
How About Revision A?

- 1 April 1980
- Dual Rear Wheels
- 1,500 lb. Payload
- Diesel Engine becomes an Option
- 11 Light System
- Orange Band
- Wiring Diagram
- AMD Stds. 1-6
And Revision B ??

- 1 June 1985
- New Flash Pattern
- Interior Cabinet Figures
- 4X4s
What changed in Revision C?

- 1 January 1990
- I & III Single Rears 1,200 lb. Payload
- 1,700 lb, payload for II’s
- Duals go to 1,750 lb.
- Workmanship section expanded
- 14 Light System
- AMD Std 7-9
- ALS/BLS
- Max Load Heights
- Diesel becomes Std.
- Payload Sticker
- Notes, Notices & Warnings
And Revision D??

- 1 January 1994
- Metrification
- I & III Single Rears
  1,500 lb. Payload
- Color Printing
How about Revision E?

- 1 June 2002
- Adds “AD” units
- Portable Equipment Charging Circuits
- Revised Electrical Diagram
- AMD 10-15
- Available as PDF file
- 3 Change Notices issued
Change Notices

- Warning light systems shall not impair the effectiveness of the ambulance’s exterior lighting with conformity to the requirements of FMVSS No. 108
- Enhanced Payload Sticker
- Deleted the requirement for an Ammeter
- Added 41” seat overhead clearance
- Added voltage Monitor
Revision F

- Effective Date 1 August 2007
- Electronic Form Only
- AMD 16-25
- Revised Format
  - Minimum Requirements
  - Optional Configurations
- Removed Fire Suppression Packages
- Increased seat overhead clearance to 43”
- Removed requirement for Squad Bench
- Initial testing and inspections required for certification shall be performed by a nationally recognized independent testing facility
- 8 Change Notices issued
Change Notices

- Clarified 3rd party testing requirements
- Removed references to Drip Rails
- Enhanced on board suction requirements
- Occupant Weight changed to 171 lbs.
- Weight & CG calculations more stringent
- Type II redefined
- Side loading permitted as option
- Revised oxygen system test
- Payload signage simplified
CN7

- Cumulative, replaces CN’s 1-6
- Contains references to NIST research
- Occupant weight goes to 175 lbs.
CN 8

- Incorporates SAE J3026 Ambulance Patient Compartment Seating Integrity and Occupant Restraint

- Incorporates SAE J3027 Ambulance Litter Integrity, Retention, and Patient Restraint

- Incorporates NIST Guidebook
CN 8

- Does not incorporate SAE J3043 Ambulance Equipment Mounts
- Does not incorporate SAE J3102 Ambulance Patient Compartment Structural Integrity Test to Support SAE J3027 Compliant Litter Systems
WHEN AMBULANCES CRASH
EMS Provider & Patient Safety

DATA COLLECTED BETWEEN 1992-2011

4,500
vehicle traffic crashes involving an ambulance per year

34%
resulted in injuries

33
people killed per year

84%
OF EMS PROVIDERS IN THE PATIENT COMPARTMENT WERE NOT RESTRAINED

INJURY SEVERITY AND USE OF SAFETY RESTRAINTS IN EMS PROVIDERS*

44% of patients were ejected from the cot in serious crashes*

61%
restrained with internal belts only*

38%
shoulder harnesses were available but were not used*

SIT DOWN & BUCKLE UP!
Secure Your Patients. They Rely on You!

This safety message brought to you by NHTSA’s Office of EMS.

*IN SERIOUS CRASHES INVESTIGATED BY NHTSA
Can I get an ambulance with no cot?

- Cots are not required for K Certification
- A complete litter fastener assembly is required
Utilization of Pass-through Compliance

- Is an ambulance manufacturer required to dynamically test their manufactured seats – i.e. squad bench, CPR seat, jump seat, etc?

- Can the ambulance manufacturer utilize the documentation provided by the seat or cot manufacturer or must they perform their own dynamic testing?

- Can the documentation from the vendor be self-created, or must it come from the dynamic testing lab?

  - FSAMs are required to establish traceability back to successful, compliance tests for the designated seating positions and associated restraints. This can be done through actual tests by the FSAM, vendor testing of representative seats/restraints or other engineering judgment officiated by the lab performing the type certification.
SAE J3026

- If the testing lab is performing J3026 on a squad bench with multiple seating positions, must each position be occupied by an ATD for all applied pulses? Only SAE can officially speak to and edit their documents, but yes, the intention is to simultaneously test, and dummy-on-dummy contact is excluded from the results.

- In addition to the frontal pulse, does J3026 require one or two side pulse tests? Hit from the left side, hit from the right side or both? The use of symmetry, where applicable, is established engineering judgement and can be used to reduce testing. However, if referring to a fixed, side-facing seat, the orientation of the impact would be unique to each side (driver’s side and passenger side) of the vehicle, so both test modes would be required.

- J3026 requires an unavailable EuroSID. Is an H3 acceptable? Yes, and this is one of the clarifications in the document that have been identified and will be presented to the SAE Truck Crashworthiness Committee at their next scheduled meeting on Oct. 6th.

- How do we get the SAE standard revised? See previous
Seat/Cot questions

- What seat/cot documentation is required to be supplied by the FSAM?
  - Owner’s manual/warranty statements

- How do I know if a specific state officially requires an SAE compliant cot or seat?
  - Ask State EMS Director
Compliance Requirements

- Is there a current resource that identifies the applicability of CN #8 by State?
  - No

- I have heard State XYZ requires KKK compliance but does not require a compliant cot, is that true and how do I know?
  - Ask State EMS Director
More Compliance Questions

- State XYZ requires compliance to KKK-A-1822 (Rev C). Do they get a new cot or old?
  - Ask State EMS Director

- State XYZ requires second patient transport capabilities, how do we comply if they also require KKK-A-1822 CN #8 compliance?
  - Ask State EMS Director
Testing Requirement Questions

- What is the current requirement for Oxygen Tank retention testing?
  - AMD 003

- What are my requirements for testing the floor of my ambulance using the new SAE compliant cot systems?
  - AMD 004
More Testing Questions

- What are my requirements for testing the mounting of a vendor supplied SAE compliant seat?
  - Whatever is necessary for FMVSS compliance or not addressed in pass-through documentation by seating supplier.

- What is the status of the floor mount integrity static test and does it currently apply to me?
  - Assuming you are referring to the litter retention system-to-floor test being developed for publication by SAE, unpublished Standards are not requirements nor referenced in the K-Spec.
The “K” Sticker

CERTIFIED “STAR OF LIFE” AMBULANCE

Date of Manufacture ______________________________________________________

Mfg By:_________________________________________________________________

This Ambulance confirms to Federal Specification KKK-A-1822 In effect on the date the ambulance was contracted for.

Exceptions taken? NO _______________ YES _______________

If exceptions are taken, they must be listed in the handbook of instruction and identified by Section number.

Final Stage Ambulance Manufacturers ID Number _______________________________

VIN___________________________________________________________________

OEM Chassis Model, Year of Manufacture _________________________________

Vehicle Type _________________________________

NOTICE: THIS VEHICLE, AS MANUFACTURED, CONFORMS TO THE PAYLOAD REQUIREMENTS OF THE FEDERAL AMBULANCE SPECIFICATION KKK-A-1822. USERS SHALL NOT LOAD VEHICLES ABOVE THE GVWR, GAWRS OR EXCEED THE TOTAL USABLE PAYLOAD OR CAPACITY LISTED BELOW.
FROM THE EDITOR
PUTTING ISSUES INTO PERSPECTIVE

R.I.P. KKK

How states can help us respond to our battles on the street

This is a very direct editor’s page—in words and purpose—because I want EMS managers, ambulance and equipment committees, and (most importantly) state directors and committees to understand the opportunity and responsibility they have to get us all on the track to a safer, more efficient and effective work environment.

I, along with many of my colleagues, have joined the war effort and intend to win the war. No, I’m not off to fight in Afghanistan or other distant battlefields. But I have enlisted as a soldier in the effort to conquer injustice and radical cultures here in the United States that are hurting civilians and EMS responders and, in many ways, holding people captive by not allowing them the freedom to move around their “community” to work in a safe environment.

Let me get right to the point. The federal ambulance specifications, affectionately known as the federal “KKK” specifications, have finally been allowed to die a peaceful death and make room for a safer, more flexible set of recommended standards for the design of ambulances in the U.S.

So R.I.P. KKK specs. I knew you, I respected you, I listened to you, but—in all honesty—I’m glad you’re finally gone!

Like so many bosses, chiefs, leaders and legislators who have impeded necessary change and prevented you from making progress until they retired, got fired or died, the death of the KKK specs is creating the opportunity for more sensible (and current) thinking about how you design and work in ambulances.

When I was an EMS director and had $30,000 state and federal grants to award to eligible agencies to assist in the procuring of new ambulances, I had to have them sign agreements that specified they would buy one that met the KKK specifications. This was so they wouldn’t letter a bread truck as an ambulance, strap in a stretcher, slide in a few kits and offer themselves to the public as an ambulance service.

Young EMTs and medics are probably laughing at the thought of that, but the truth is, if you were around in the 50s and 70s you would have seen black Cadillacs and station wagons that transported the dead and the living. It was not uncommon for a funeral home to snap a red light into a pre-wired base on the roof of a hearse and send two “attendants” on an ambulance call.

When I started as an EMS director in Eastern Pennsylvania in 1976, 20% of the ambulances either had no radios or were equipped with CB radios, and they were dispatched by an answering service, police dispatcher or (I swear) a private home, bar room or furniture store “dispatch base.”

Along came federal seed money, 100-watt and 100-channel radios, 9-1-1 centers and standards for EMTs, paramedics and, yes, of course, ambulances. In order to advance and get grant funding, committees, often composed of reputable and interested physicians and well-intended state and federal officials, developed “standards” and “essential, minimum equipment lists” designed to make sure we were carrying the most appropriate equipment items, and in the correct minimum quantity.

Well, decades have passed with us being held captive by the KKK ambulance specifications and forced to build box ambulances that had deep cabinets and a silly “walk-through” passageway that were seldom used and usually cluttered with radios, clipboards, purses, helmets, safety vests, maps, flashlights and other stuff.

We also had to live for 30 years with a coffin-like structure called a “squad bench” that never really served a good purpose other than to unceremoniously accommodate a second supine position when we were short on units or overloaded with patients.

I can only remember two— or three-dozen times in my 40-year career when I had to have two patients in the back of one of my ambulances because of “circumstance beyond my control.” I use that terminology because no one in a proper (medical) frame of mind would transfer two critical patients in the same cramped, moving ambulance with only one or two EMTs or paramedics “caring” for them.

The reality is that we’ve done it, felt we could justify it and got away with the minimal care and comfort we could provide during a cramped, chaotic ride to a hospital.

Most importantly, most of us looked out and didn’t ‘have a patient “crash” on us on the way to the hospital, or, worse yet, get “T-boned” while we were moving around, unsecured, in the back of the overloaded “box” like a bunch of mice at a feast in a dumpster.

So hooray for the death of the KKK specs, hooray for the death of the squad bench and hooray for the freedom I hope ambulance purchasers and manufacturers will now have to rethink and redesign a better battle cruiser for our soldiers of medicine, and help us build and work in a more sensible and efficient environment.

But, I’d be remiss if I didn’t close this editorial without important words for today’s EMS officials, committee members, spec writers and “essential and ambulance specification” committees.

These leaders and advisors now need to take the time to rethink what they really are mandating in the ambulances in their states and, consequently, on the ambulance designers and manufacturers.

If they specify that ambulances have to have 150 adult O2 devices, four-dozen ice packs, 12 sheets and 24 triangular bandages and IV catheters (when they really only need 3–6 of each), we won’t be able to build ambulances that have smaller, more efficient work areas, storage, and equipment brackets.

We will become the new enemy that we have to fight in the war on inefficient, ineffective and overstocked ambulances.

Help us change and rearrange our ambulance space and seating locations by rethinking the quantity of “stuff” we have to carry with us to the battlefield.
What is the future of K?

- Will be maintained as an active specification until a suitable replacement is found per OMB A-119
- Will be updated to take advantage of new technologies
- Will be updated to take advantage of proven safety upgrades
- Will be updated to take advantage of new dynamic and static test methods
Who Regulates Ambulances in Your State?

- Not GSA
- Not NFPA
- Not ASTM
- Not CAAS
- Not DOT
- Not AMD (NTEA)

Your State EMS Director
What Does My State Require?

- Different in each state
- Contact your state EMS Director **BEFORE** you buy, not after the ambulance is delivered

Questions??

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