

Reference Materials: Note: This exam may contain some "accepted practice" type questions not found in the reference material listed below.

Ambulance Performance Standards, AMD 001-015, NTEA, AMD Division, 37400 Hills Tech Dr., Farmington Hills, MI 48331-3414 248-489-7090. Available for no charge at <http://www.ntea.com/WorkArea/showcontent.aspx?id=1346>

KKK-A-1822F **Federal Specification for the Star-of-Life Ambulance**, download for no charge at <http://www.ntea.com/WorkArea/showcontent.aspx?id=1352>

OSHA Publications #3186 *Model Plans and Programs for the OSHA Bloodborne Pathogens and Hazard Communications Standard*.

Online order form for OSHA Publications- <http://www.osha.gov/pls/publications/publication.html> or call 202-693-1999

NFPA 1911, **Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus**

National Fire Protection Association, Quincy, MA. To order call (800) 344-3555 or www.nfpa.org

Ford Ambulance QVM Guide, <https://www.fleet.ford.com/truckbbas/non-html/qpg/2004/ambulanceguidelines04.pdf>

General shop manuals, such as: Ford 1-ton chassis, Freightliner Medium Duty, International/Navistar Medium Duty

Any Material Safety Data Sheet

Any service manual for OBD-2, Class 1 Diagnostic Service Codes

LEARNING OBJECTIVES FOR THE E-4 EXAM

1. Definitions or Terms

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|---------------------------------------|----------------------------------|-------------------------------|
| a. Ambulance | l. GAWR-gross axle weight rating | w. G.F.I. |
| b. Action area | m. Load management | x. Traffic pre-emption device |
| c. Squad bench | n. Auto throttle | y. Dissimilar metals |
| d. Curb weight | o. Gradeability | z. Electrolysis |
| e. HVAC-Heating, Ventilation,&Air | p. Payload | aa. Breakout box |
| f. ALS-Advanced Life Support | q. AMD Standards | bb. Hepa filters |
| g. BLS-Basic Life Support | r. Curb side | cc. Polyglycol |
| h. Type I, II, III | s. Weight Distribution | dd. Forging |
| i. APC Module-Auxiliary Power Control | t. Litter | |
| j. PCM- Power Control Module | (1) Retention system | |
| k. GVWR-gross vehicle weight rating | u. Grab Rail | |
| | v. Final stage manufacturing | |

2. Physical characteristics of an ambulance-Identify the design requirements as stated in KKK-A-1822E

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| a. Ground clearance & loading floor height | e. Ambulance types |
| b. Height, width, wheel base, & length | f. Ambulance class & configurations |
| c. Angle of approach & departure | g. Vehicle performance |
| d. Ramp breakover | h. Water spray test |

3. Cab and Body--Describe maintenance and repair of the following;

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| a. Heating, Ventilation, and A/C systems | o. Visual & audio warning devices |
| b. Center cab console components | p. Headlights and wipers |
| c. Electronic memory systems | q. Power windows & locks |
| d. Two-way radio systems | r. Intercom systems |
| e. Master switch systems | s. Traffic pre-emption device |
| f. 120 volt AC systems | t. Electrical Wiring |
| g. Interior & exterior finishes | u. Oxygen Systems |
| h. Interior & exterior compartment lighting | (1) Retention system |
| i. Door, latches, hardware | (2) Outlets |
| j. Windows & rear view mirrors | v. Body construction & configuration |
| k. Steps, step lighting & running boards | (1) Squad bench |
| l. Exterior lighting | (2) Restraints |
| m. Corrosion control | w. Patient compartment sound levels and air quality |
| n. Interior floor | x. Auto eject systems/shoreline power connections |
| | y. Record keeping |

4. Chassis-Describe principles of operation, maintenance, and repair of the following:

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| a. Brakes | c. Frame |
| (1) Hydraulic brake systems & fluid types | (1) Inspection & alignment |
| (2) Parking brakes and cables | (2) Body & cab mounts |
| (3) Anti-lock systems-wiring, bleeding, etc | (3) Motor & transmission mounts |
| (4) Brake assemblies | (4) Welding |
| (5) Brake Retarder installation | (5) Trailer hitches |
| b. Suspension | |
| (1) Tires and wheels | |
| (2) Steering gear & power steering | |
| (3) Springs & shocks | |
| (4) Air suspension systems | |

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- d. Power train & support systems
 - (1) Diesel engines
 - (2) Cooling systems
 - (3) Lube systems
 - (4) Fuel systems
 - (5) Air intake systems
 - (6) Glow plugs
 - (7) Exhaust systems
 - (8) Transmissions-oils
 - (9) Drive Shaft
 - (10) Differentials
 - (11) Electrical systems
 - (12) Engine trouble code checks
 - (13) Engine auto throttles

5. Trouble Shooting & Diagnostics--Understanding accepted practices of the following:

- a. Retrieving and interpreting diagnostic codes
- b. Interpret diagnostic charts and service manuals
- c. Understand schematic drawings
- d. Describe use of diagnostic equipment
- e. Road testing for driveability problems
- f. Transmission- fluid levels, contamination, linkage adjustments, and electronic controls
- g. Welding precautions

6. Safety--

6.1 Identify and describe the following safety procedures:

- a. Use of wheel chocks
- b. Proper lifting & support equipment
- c. Proper building ventilation
- d. Personal protective equipment(PPE)
- e. Right-to-know law
- f. Material Safety Data Sheets(MSDS)
- g. Blood borne pathogens
- h. Accepted safety practices
- i. SRS-supplemental restraint systems

6.2 NFPA 1915 "Out of Service" Criteria

- a. Hydraulic Brakes
- b. Engine Oil Leaks