

Reference Materials: Note: This exam may contain some "accepted practice" type questions not found in the reference material listed **Ambulance Performance Standards**, AMD 001-025, NTEA, AMD Division, 37400 Hills Tech Dr., Farmington Hills, MI 48331-3414 248-489-7090. Available for no charge at <http://www.ntea.com/content.aspx?id=3620>

KKK-A-1822F Federal Specification for the Star-of-Life Ambulance, (change notices 1 & 2) download for no charge at <http://www.ntea.com/content.aspx?id=3620>

OSHA Publications: Online order form for OSHA Publications- <http://www.osha.gov/pls/publications/publication.html> or call 202-693-1999 #3084 *Chemical Hazard Communication*, #3186 *Model Plans and Programs for the OSHA Bloodborne Pathogens and Hazard Communications Standard*.

Any general truck repair maintenance manual and any Material Safety Data Sheet

LEARNING OBJECTIVES FOR THE E-1 EXAM

1. Definitions or Terms

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| a. Types of ambulances | m. Relay |
| b. Gradeability | n. AMD Standards |
| c. Payload | o. Curb weight |
| d. Ramp breakover | p. Test criteria |
| e. KKK-A-1822/Ambulance | q. FMVSS (Federal Motor Vehicle Safety Standards) |
| f. Weight Distribution | r. AMECA (Automotive Manufacturers' Equipment Compliance Agency) |
| g. Approach & departure angle | s. OSHA (Occupational Safety and Health Administration) |
| h. Radio frequency interference (R.F.I.) | t. AD (Additional Duty) |
| i. Battery chargers & invertors | u. FSAM |
| j. Rectifier | v. EMSP |
| k. KKK-A-1822/Scope | w. Medical devices |
| l. Wattage(power)/amperage(current) | |

2. General Requirements

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| a. Emergency lighting and mirrors | n. 125 volt Ac and invertor |
| (1) Primary mode warning lights | (1) Operations |
| (2) Secondary mode warning lights | (2) 125 VAC grounds |
| (3) Warning light maximum average electrical load | (3) 125 VAC GFCI |
| (4) Check out lights | (4) 125 VAC outlets |
| (5) Emergency lighting flash rate | o. Noise level requirements |
| (6) Proper emergency light configuration and types and interior lighting & mirrors | p. Driveline |
| (7) Interior lighting requirements | (1) Requirements |
| b. Proper operation of marker and turn signals | q. Cot retention & Patient Seating |
| c. Speed & acceleration | (1) Requirements |
| (1) Requirements | (2) Cot mounting clearances |
| (2) Sustained speed | (3) Occupant Head Clearance |
| (3) Gradeability at speed | r. 12 volt electrical |
| d. Engine starting requirements | (1) Service loop |
| e. Vehicle Physical Dimensions | (2) Generating system |
| (1) Maximum loading height | (3) Wiring installation/antenna |
| (2) Minimum angle for ramp breakover | (4) "Schottky" Diode |
| (3) Minimum allowable departure angle | (5) 12 volt interruptible chassis & module power |
| (4) Minimum angle of approach | (6) Master module disconnect device |
| (5) Ground clearance | (7) 12 volt circuit breaker panel |
| (6) Overall height | (8) Voltmeter |
| (7) Cab to axle dimension | (9) Low voltage warning device |
| f. Vehicle weight rating and payload | s. Suction Aspirator System |
| (1) Payload calculations & axle loading | (1) Suction aspirator primary |
| (2) Tire load range | t. Seats and seat belt requirements |
| (3) Tire inflation pressure/balancing | u. Oxygen system |
| (4) Spare tire and jack requirement | (1) Oxygen system hose |
| (5) Occupant standard weight | (2) Oxygen pressure reducing & regulating valve |
| g. Heating system requirements | (3) Oxygen system leak testing |
| h. Air-Conditioning system | (4) Oxygen tank retention |
| (1) Requirements | (5) Amount of oxygen |
| (2) Cab defroster performance | v. Grab handle requirement |
| i. Ventilation systems | w. Fording requirements |
| (1) Carbon monoxide testing | x. Siren PA and Speakers |
| j. Radio Frequency (RF) grounding | (1) Performance tests |
| (1) Radio frequency suppression for alternators | (2) Speaker mounting |
| k. Battery system and components | y. Mirrors, wipers, & safety equipment |
| (1) Battery conditioner | (1) Requirements |
| (2) 12 volt DC electrical test | (2) Fire Extinguishers |
| l. Fuel capacity & range | (3) Head cushions |
| (1) Fuel system components | z. Engine exhaust and cooling system |
| m. Door | (1) Air pollution control |
| (1) Latch requirements | aa. Engine protection requirements |
| (2) Door open warning | |
| (3) Walk-through door dimensions | |

- bb. Star of Life
 - (1) Certification requirements
 - (2) Performance tests
 - (3) General body & cab construction
 - (4) Safety labels
- cc. Engine high idle speed control automatic
- dd. Back up alarm
 - (1) Decibel rating
- ee. Rear step
 - (1) testing requirements
 - ee..1.1 weight
 - ee..1.2 deflection test
 - (2) Independent rear step
 - (3) Combination rear step
- ff. Warranty
- gg. CO levels

3. Safety/FMVSS & OSHA

- a. Bloodborne pathogens
- b. Right-to-Know Law
- c. Material Safety Data SHEET (MSDS)
- d. Biohazard warning
- e. Seat belts, seats, and air bags
- f. Brake dust
- g. Hazardous materials
- h. Oxygen system safety/restraints
- i. AMD Step and bumper requirements and safety
- j. Sharps storage area
- k. Electrical system hazards
- l. NHTSA (National Highway Traffic Safety Administration)
- m. Personal safety requirements
- n. Gasoline engines
- o. Fire extinguisher servicing

4. Principles of Troubleshooting

- 4.1 Troubleshooting and Repair
 - a. Heating and Air-Conditioning systems
 - b. Tire wear characteristics
 - (1) such as tire & wheel balance
 - c. Steps of Troubleshooting
 - d. Brakes
 - (1) Troubleshooting Procedure
 - (2) Uneven lining wear
 - (3) Brake fade
 - (4) Brake pull condition
 - (5) Heat checking
 - e. Starting system
 - (1) Troubleshooting procedure
 - (2) Proper engine starting procedures
 - (3) Glow plug systems
 - f. Cooling system
 - (1) Troubleshooting
 - (2) Overheat conditions
 - g. Battery boost procedure
 - h. Diesel engines
 - (1) Recommended idling procedure and shutdown
 - (2) Oil dilution/contamination
 - i. Electrical systems
 - (1) Purpose of a rectifier
 - (2) Purpose of a battery conditioner
 - (3) Problems caused by use of incorrect bulbs
 - (4) Faulty ground
 - j. Radio antennas
 - (1) Ground plane
 - k. Suspension & steering systems
 - (1) Vehicle loading effects
 - (2) Ride height
 - (3) Spring Mounts & U bolts
 - (4) Air suspension
 - l. Exhaust systems
 - m. Diesel fuel injection systems
 - (1) Leaking/dripping injectors
 - (2) Cold start injection timing advance
 - n. Vehicle charging systems
 - (1) Torsional vibrations
 - (2) Radio interference
 - (3) Alternators
 - o. Towing procedures
 - p. Welding precautions
 - q. Batteries
 - r. Transmission troubleshooting
 - s. Wheel bearings
 - (1) Proper adjustment
 - (2) Wheel seats
 - t. Alternators
 - (1) Radio interference
 - u. Air filters/restriction indicators