

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

NFPA 1900: Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances (**NFPA 1917 Chapters**) 2024 edition (800) 344-3555 or www.nfpa.org

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

#3514 Hazard Communication Standard: Safety Data Sheets - OSHA Brief

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

AMD Standardized Test Methods: http://www.ntea.com/NTEA/Who_we_are/Affiliate_divisions/AMD_Standardized_Test_Methods.aspx

Any general truck repair maintenance manual, and any Material Safety Data Sheet/Safety Data Sheet/Global Harmonization System

Any professional automotive or manufacturers website

LEARNING OBJECTIVE

1. Definitions or Terms

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| a. Types of ambulances | o. Curb weight |
| b. Gradeability | p. Test criteria |
| c. Useable Payload | q. FMVSS (Federal Motor Vehicle Safety Standards) |
| d. Ramp breakover | r. AMECA (Automotive Manufacturers' Equipment Compliance Agency) |
| e. Ambulance | s. OSHA (Occupational Safety and Health Administration) |
| f. Weight Distribution | t. AD (Additional Duty) |
| g. Approach & departure angle | u. FSM-Final Stage Manufacturer |
| h. Radio frequency interference (R.F.I.) | v. EMSP-Emergency Medical Service Provider |
| i. Battery chargers & invertors | w. Medical devices (regulations) |
| j. Rectifier | x. EPA |
| k. Scope | y. Continuous duty |
| l. Wattage(power)/amperage(current) | z. Reserve capacity |
| m. Relay | aa. Interlock |
| n. Shall/Should | bb. AHJ |

2. General Requirements

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| a. Emergency lighting and mirrors | n. 125 volt AC and inverter |
| (1) Calling for Right of Way | (1) Operations |
| (2) Blocking Right of Way | (2) 125 VAC grounds |
| (3) Warning light maximum average electrical load | (3) 125 VAC GFCI |
| (4) Check out lights | (4) 125 VAC outlets & location |
| (5) Emergency lighting flash rate | (5) Shorepower/shoreline |
| (6) Proper emergency light configuration and types and interior lighting & mirrors | o. Noise level requirements |
| (7) Interior lighting requirements | p. Equipment |
| b. Proper operation of marker and turn signals | (1) Mounting |
| c. Speed & acceleration | (2) IV Holders |
| (1) Requirements | q. Patient Compartment, Cot retention & Patient Seating |
| (2) Sustained speed | (1) Requirements |
| (3) Roadability | (2) Cot mounting clearances |
| d. Engine starting requirements | (3) Occupant Head Clearance |
| e. Vehicle Physical Dimensions | (4) Occupant restraints |
| (1) Maximum loading height | (5) CO detection |
| (2) Minimum angle for ramp breakover | r. 12 volt electrical |
| (3) Minimum allowable departure angle | (1) Service loop |
| (4) Minimum angle of approach | (2) Generating system |
| (5) Ground clearance | (3) Wiring installation/antenna |
| (6) Structural integrity | (4) 12 volt interruptible chassis & module power |
| f. Vehicle weight rating and payload | (5) Master load disconnect device |
| (1) Payload calculations & axle loading | (6) 12 volt circuit breaker panel |
| (2) Traction control | (7) Voltmeter |
| (3) Tire inflation pressure/balancing | (9) Low voltage warning device |
| (4) Occupant standard weight | s. Suction Aspirator System |
| g. Heating system requirements | (1) Suction aspirator primary |
| h. Air-Conditioning system | t. Seats and seat belt requirements |
| (1) Requirements | u. Oxygen system |
| (2) Cab defroster performance | (1) Oxygen system hose |
| i. Ventilation systems | (2) Oxygen pressure reducing & regulating valve |
| (1) Carbon monoxide requirement | (3) Oxygen system leak testing |
| j. Radio Frequency (RF) grounding | (4) Oxygen tank retention |
| (1) Radio frequency suppression for alternators | (5) Amount of oxygen |
| (2) Types of wire | v. Grab handle/handrail requirements |
| k. Battery system and components | w. Fording requirements |
| (1) Battery conditioner | x. Siren and Speakers |
| (2) 12 volt DC electrical test | (1) Performance tests |
| l. Fuel capacity & range | (2) Speaker mounting |
| m. Door | y. Mirrors, wipers, & safety equipment |
| (1) Latch requirements | (1) Requirements |
| (2) Door open warning | (2) Head cushions |

- z. Engine exhaust and cooling system
- aa. Engine protection requirements
- bb. Star of Life
 - (1) DOT requirements
- cc. Engine high idle speed control automatic
- dd. Back up alarm
 - (1) Decibel rating
- ee. Rear step
 - (1) testing requirements
 - 1.1 weight
 - 1.2 flexing or deflection test
 - (2) Integrated rear step

3. Safety/FMVSS & OSHA

- a. Bloodborne pathogens-OSHA 3186
- b. OPIM- Other Potentially Infectious Material
- c. ECP- Exposure Control Plan
- d. Hepatitis B training and immunization
- e. Right-to-Know Law
- f. Material Safety Data SHEET (MSDS) Information
- g. Biohazard warning
- h. Seat belts, seats, and air bags
- i. Brake dust
- j. Hazardous materials
 - (1) Employee training plan

4. Principles of 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

- ff. CO levels
- gg. Legal requirement
- hh. Ambient temperature range
- ii. Average occupant weight

- k. Oxygen system safety/restraints
 - l. NFPA Step and bumper requirements and safety
 - m. Sharps storage area
 - n. Electrical system hazards
 - o. NHTSA (National Highway Traffic Safety Administration)
 - p. Personal safety requirements
 - q. Fire extinguisher servicing
 - r. Safety Data Sheet (SDS) information
 - s. Global Harmonization System (GHS) information
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- j. Radio antennas
 - (1) Ground plane
 - (2) Accessibility
 - 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
 - (4) Radio Interference
 - 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
 - v. Gasoline Engines