

Reference Material: This exam may contain some "accepted practice" type questions not found in the reference material.
When an inconsistency arises between NFPA 414 and FAA 10E, NFPA 414 will take precedence

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

NFPA 414 **Standard for Aircraft Rescue and Fire-Fighting Vehicles**

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

FAA Advisory Circular, AC No: 150/5220-10E, **Guide Specification for Water/Foam Aircraft Rescue and Firefighting Vehicle**, U.S. Department of Transportation, Federal Aviation Administration.

Fluid Power Designers' Lightning Reference Handbook,- Graphical Symbols Section - 856-489-8983

<http://www.hydraulicsliteraturestore.com/trma.html>

Clean Diesel Forum, about clean diesel section <http://www.dieselforum.org/about-clean-diesel/clean-diesel-glossary>

TheAA.com <http://www.theaa.com/driving-advice/fuels-environment/diesel-particulate-filters>

Cummins After Treatment System <https://cumminsenines.com/cummins-after-treatment-system>

Any recognized manufacturer's training manuals

Learning Objectives for the A-2 Exam

1. **Definitions:** The Aircraft Rescue Vehicle Technician shall define the terms and phases commonly used in connection with the operation and/or testing of ARFF Vehicles, to include the following:
 - a. **Vehicle Chassis:**

(1) Frame	(7) Power Divider	(13) Quick Build Up/ Air System
(2) Axles	(8) Wheels and Tires	(14) Torque Converter
(3) Brake Systems	(9) Engines	(15) Fluid Coupling
(4) Suspension	(10) Transmission	(16) Tubing-hoses-fittings
(5) Steering	(11) Electrical Systems	
(6) Transfer Case	(12) Fuel System	
 - b. **Vehicle Components:**

(1) Body and Cab	(4) Foam Agent Pump (not transfer pump)	(8) MADAS
(a) warning lights	(5) Dual Agent Nozzle & Turret	(9) Generators
(2) Eductor	(6) Built in battery Charger	(a) Bonding
(3) Proportioner	(7) Valves and plumbing	(10) Lateral Acceleration Indicator (LAI)
		(11) Elevated Waterway Nozzles
 - c. **Emissions**

(1) SCR - Selective catalytic reduction	(4) CCF - Closed Crankcase Filter	(7) Regeneration
(2) DEF - Diesel Exhaust Fluid	(5) DPF - Diesel Particulate Filter	(a) Active
(3) DOC -Dielsel Oxidation Catalysts	(6) Dosing Valve	(b) Passive
		(c) Forced
		(8) Ultra Low Sulfur Diesel Fluid
2. **Principles of operation:** Understand the basic operating principles of the chassis and its components.
 - a. **Identify Hydraulic and Air system symbols, such as:**
 - (1) Hydraulic Pump
 - (2) Pressure Protection Valve
 - b. **Describe the Function and Application of the following:**

(1) Engine Governors	(5) Steering and Suspension	(9) Dual Agent Nozzle & Turret
(2) All Wheel Drive	(6) Built in battery charger	(10) Windshield deluge system
(3) Pump and Roll	(7) Air Mechanical Brakes	(11) Winterization system
(4) Quick build up air systems	(8) Air-over Hydraulic Brakes	(12) Exhaust system
		(13) Pressure relief valves
		(14) Side Slope (SAEJ2180)
3. **Principles of Repair, Maintenance & Troubleshooting:** The Aircraft Rescue Vehicle Technician shall understand the principles of service of Aircraft Rescue and Fire-Fighting Vehicles.
 - a. **Identify Service and Preventative Maintenance Activities:**

(1) Types of inspections & procedures	(4) Use of maintenance schedules
(2) Purpose of visual inspections	(5) Manufacturers "Accepted Practice" methods
(3) Maintenance records	(6) Procedures
	(7) Vehicle retirement
 - b. **Troubleshooting and repair procedures:**

(1) Diagnose common problems	(7) Identify Out-of-Service criteria
(2) Interpret schematics/diagrams	
(3) Retrieve and interpret diagnostic codes	
(4) Describe use of diagnostic equipment	
(5) Understand operational test requirements	
(6) Identify "Accepted Practice" repair procedures	