ARFF-3 Extinguishment Systems of Aircraft Rescue and Fire-Fighting Vehicles

February 2020

Reference Materials:
Note: This exam may contain “accepted practice” type questions not found in reference material.
When an inconsistency arises between NFPA 414 and FAA 10D, NFPA 414 will take precedence.

Pumping Apparatus DRIVER/OPERATOR Handbook, 3rd edition, International Fire Service Training Association (IFSTA), 800-654-4055 or www.ifta.org; Ch. 5, 9 & 10
NFPA 412 Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment
National Fire Protection Association, Quincy, MA (800) 344-3555 or www.nfpa.org
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 150/5220-10E www.faa.gov
Any Major Fire Pump Manufacturer Repair Manual

Learning Objectives for the ARFF-3 Exam

1. Fire and Water Pump Systems
   a. Hydraulic Theory
   b. Mechanical
   c. Operations and Components
   d. Controls and Instrumentation
   e. Over Heat Protection
   f. Pump Engagement
   g. Pump and Roll
   h. Interlock

2. Plumbing Systems
   a. Hose Reel and Woven Jacket
     (1)required range
     (2)required hose length
   b. Master Drains
   c. Windshield Deluge
   d. Pressure Relief Valves
   e. Priming System
   f. Water tank
   g. Flow Switches
   h. Interlocks
   i. Structural Panel
   j. Piping
   k. Valve
   l. Winterization

3. Foam Systems
   a. Transfer Pumps
   b. Flushing Systems
     (1)Mounting
   c. Instruments and Controls
   d. Interlocks
   e. Check Valves
   f. Foam Tanks
   g. Metering Valves
   h. Proportioning Systems
   i. Foam Agents
   j. Eductors
   k. Foam Pumps
   l. Testing
   m. Premix
   n. CAFS
   o. Fluoroprotein
   (1)Foam Concentration Range
   (2)Wind Speed
   (3)Order of Discharge
   Sampling

4. Nozzle and Turret Systems
   a. Piercing Nozzles
   b. Discharge Patterns/distances
   c. Non-Aspirated
   d. Aspirated
   e. Electric Controls
   f. Manual Overrides
   g. Micro-Processors
   h. Joysticks
   i. Auto oscillation
   j. Hydraulic Controls
   k. Actuators
   l. Ground Sweep Systems
   m. Under Truck Nozzles
   n. Dual Agent Turrets
   o. Dual Rate Turrets
   p. Bumper Turrets
   q. Roof Turrets
   r. Interlock Systems
   s. Elevated Water-Way Systems
   t. Parallel multiple agent nozzle

5. Ancillary Agent Systems
   a. Instruments and Controls
   b. Refilling Agents
   c. Caking and Fluffing
   d. Plumbing
     (1)Halogenated agent
   e. Discharge and Blow Down Systems
     (1)Gauge Requirement
   f. Check Valves
   g. Safety Valves
   h. Pressure Regulators
   i. Pressure Vessels
   j. Hydro Chemical Nozzles
   k. Dual Agent Nozzles
   l. Propellant Gases
   m. Agents
   n. Interlocks
   o. Flow and Range
   Performance parameters for clean agent systems