



Pennsylvania State Fire Academy

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Minimum Standard for Accreditation (MSA)

February 1994

Course Title: Apparatus Preventative Maintenance (APMA)

Length of Course: 16 Hours **Lecture/Lab Breakdown:** 8/8

Prerequisites: A basic knowledge of construction and operation of fire apparatus and auxiliary vehicles; an interest in the proper maintenance of such vehicles.

Referenced Texts: Various manufacturers' operation, service and maintenance manuals; Fire service apparatus texts per instructor's option; Latest editions of the following: IFSTA "Introduction to Fire Apparatus Practices" ,NFPA #1911, "Service Tests of Pumps on Fire Department Apparatus; NFPA #1914, "Testing Fire Department Aerial Devices".

Course Goal: Upon completion of this course, the student will recognize the need to establish an effective apparatus preventative maintenance program, and will be able to design and implement a program which will meet nationally recognized standards for apparatus inspection and maintenance.

Description of Course: Using both lecture and practical exercises, this course will provide insight to the need for an apparatus preventative maintenance program from an operational, financial, and legal perspective. The course contains a review of recommended maintenance practices for both chassis components and all fire service related components such as pumps, aerials, and hydraulic - powered equipment. The practical exercises include the theory and performance of fire service pump tests to meet both Underwriter's Laboratories and National Fire Protection Association standards. A proper visual inspection of the chassis and related components of fire service vehicles will be demonstrated and practiced.

Description of Methodology to be used: Combination of lecture and hands-on practical work. Instructors are strongly encouraged to develop appropriate visual aids (based on course content and personal preferences) to supplement lecture material on such subjects as pump-related tests, visual inspection, drive trains, pumps, and related systems.

Student Equipment/Supply Needs: Pen/Pencil and notebook suitable for field use; Fire service turn-out-gear; Coveralls; industrial-style goggles or safety glasses; hearing protection.

MINIMUM STANDARDS FOR ACCREDITATION

Course Title: Apparatus Preventative Maintenance (APMA)

February 1994

Page 2

Equipment/Audiovisual/Supply requirements: Classroom with adequate seating; chalkboard/flip chart; slide projector with screen; VCR with adequate monitors; OHT projector; selection of appropriate fire apparatus to include (as a minimum) a single stage and two-stage pump; drafting facility with an 8-10' lift and suitable safe discharge area; 2 master stream appliances with stacked tip sets: at least 500' of 2-1/2" hose and necessary adapters; 1 Pitot gauge; 1 vacuum gauge; garage facility with a pit or lift (of sufficient capacity to lift fire apparatus).

COURSE OUTLINE

<u>Time</u>	<u>Content</u>	<u>Notes</u>
1:00	Course Introduction	
1:00	The Need for P.M. Programs; Legal Responsibilities; Record Keeping	
2:30	P.M. as Related to the Vehicle Chassis; Power Train	
3:30	Theory of Operation and Maintenance - Fire Pumps and Other Components	
4:00	Testing of Fire Pumps per U.L. and NFPA Requirements	
2:30	Visual Inspection of Chassis and Pump Components	
1:30	Course Summary and Evaluation	

Competency Evaluation Mechanism (Brief description-attach copy): Directed questioning of students by instructor; instructor observation of student performance in practical exercises.

Course Objectives (specific): Upon completion of this course, the student shall, to the satisfaction of the instructor:

1. be able to describe the importance of proper inspection and maintenance of Fire Department vehicles as it relates to:
 - a. Fire fighter health and safety
 - b. Legal responsibilities
 - c. Good financial management practices in terms of extended service life and economical operation.
2. given copies of the relevant manufacturer's operation, service, and maintenance manuals, be able to develop, establish, and monitor the effectiveness of a basic preventative maintenance program for vehicles under his/her jurisdiction.
3. be able to develop and maintain adequate record keeping in support of his/her preventative maintenance program.
4. be able to identify the essential elements of a U.L./NFPA annual service test for a fire pump.
5. given a fire service vehicle, correctly and safely perform a visual inspection of the chassis and related components to the standard established by the vehicle manufacturer.

Questions/Comments: Rita Wessel, Curriculum Specialist: Extension 106

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