



**BASIC FOAM OPERATIONS--FOAM HANDLINES**

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**12 BASIC FOAM OPERATIONS--FOAM HANDLINES**

Engine Company members should be trained in the proper procedure for placing a foam handline into service. Foam lines are often required for oil burner fires that have extended into and/or beyond the oil burner pit, automobile accidents with gasoline spillage, and fires involving vehicles, fuels and other hazardous substances.

**12.1 FOAM PRINCIPLES**

Foam that is discharged through a nozzle is called *Finished Firefighting Foam*. Foam concentrate, water, and air must be mixed in proper proportion in order to produce satisfactory finished foam. Producing satisfactory finished foam is a two step process:

- 1.) Foam concentrate (normally carried in 5-gallon plastic containers) is introduced into the hoseline through a *foam eductor* (see below);
- 2.) The mixture of foam concentrate and water (called *foam solution*) is further mixed with air that is *aspirated* into the foam solution by a *foam nozzle*.

**12.2 TYPES OF FOAM**

12.2.1 The Department uses four types of foam.

- Fluoroprotein Foam
- Aqueous Film Forming Foam (AFFF)
- Alcohol Resistant Foam
- High Expansion Foam (Hi-Ex)

12.2.2 Each Engine Company is required to carry three 5-gallon containers (15 gallons) of fluoroprotein foam.

12.2.2 For identification purposes, 5-gallon cans of foam concentrate are color coded (banded as follows

**TYPE OF FOAMCOLOR**

Hi-Expansion.....	Yellow
Fluoroprotein.....	Brown
Alcohol.....	Green
AFFF.....	Black

### 12.3 FOAM EQUIPMENT

12.3.1 Each Engine Company is assigned the following equipment:

- Foam eductor - the foam eductor can be adjusted to meter differing amounts of foam concentrate into the hoseline. The metering valve can be set between 1% and 6%, but for handline operations with fluoroprotein foam (the most common operation), a 3% setting should be selected.
- Foam "pick-up tube – the pick-up tube is inserted into the foam container for transferring the foam concentrate to the eductor.
- Foam nozzle – the foam nozzle aspirates the foam solution and is used to apply the finished foam.

12.3.2 The eductor and nozzle MUST be compatible in order to produce satisfactory finished foam.

### 12.4 FOAM OPERATIONS

12.4.1 In-line eductor placement is required. The eductor must be placed at least one length from the engine discharge outlet. The eductor should be supplied with either 1 ¾" or 2 ½" hose. A Firefighter equipped with a handie-talkie should be assigned to monitor operations at the eductor and change foam containers as they become depleted.

12.4.2 Up to four lengths of 1 ¾" hose can be stretched between the eductor and the foam nozzle.

12.4.3 If the eductor is out of service or otherwise unusable, the 15 gallons of foam concentrate carried on the engine can be emptied into the booster tank providing a 3% mixture of foam solution (15 gallons of foam concentrate to 500 gallons of water). For 750-gallon booster tanks, a fourth container of foam is required. In order for the foam concentrate and water to mix properly, at least six lengths of 1¾" hose are needed between the engine discharge outlet and the foam nozzle.

### 12.5 PRESSURE REQUIREMENTS

12.5.1 The Spamco eductor requires an operating pressure of 200 psi for efficient operation. The eductor is located in-line; therefore communication between the Officer supervising the foam handline, the Firefighter assigned to monitor operations at the eductor, and the ECC is essential in order to make pressure adjustments as necessary. (Consult T.B. Foam 2 Data Sheet #1 for additional information)

### 12.6 MAINTENANCE

12.6.1 At the conclusion of operations, clean water should be run through the hose, eductor, pick-up tube and foam nozzle for at least fifteen minutes in order to remove any foam residue which can damage equipment. If foam was added to the booster tank, it is important to flush the pump through the discharge valve used for the foam handline in order to remove any residual foam.