WATER-TYPE FIRE EXTINGUISHERS

1. GENERAL

1.01 The water-type fire extinguishers such as the E-7 and E-10 are used for Class A fires, i.e., paper, wood, trash, etc. The E-11 may be used on fires involving telephone switching equipment or distributing frames, and on electrical fires where voltages are under 340 volts. Also where the fire has made some headway and is beyond the scope of the CO_2 extinguisher due to the lack of cooling action of the gas on deep seated masses of burning material. The water-type extinguishers are not suitable for use on fires involving flammable liquids, oils, or greases.

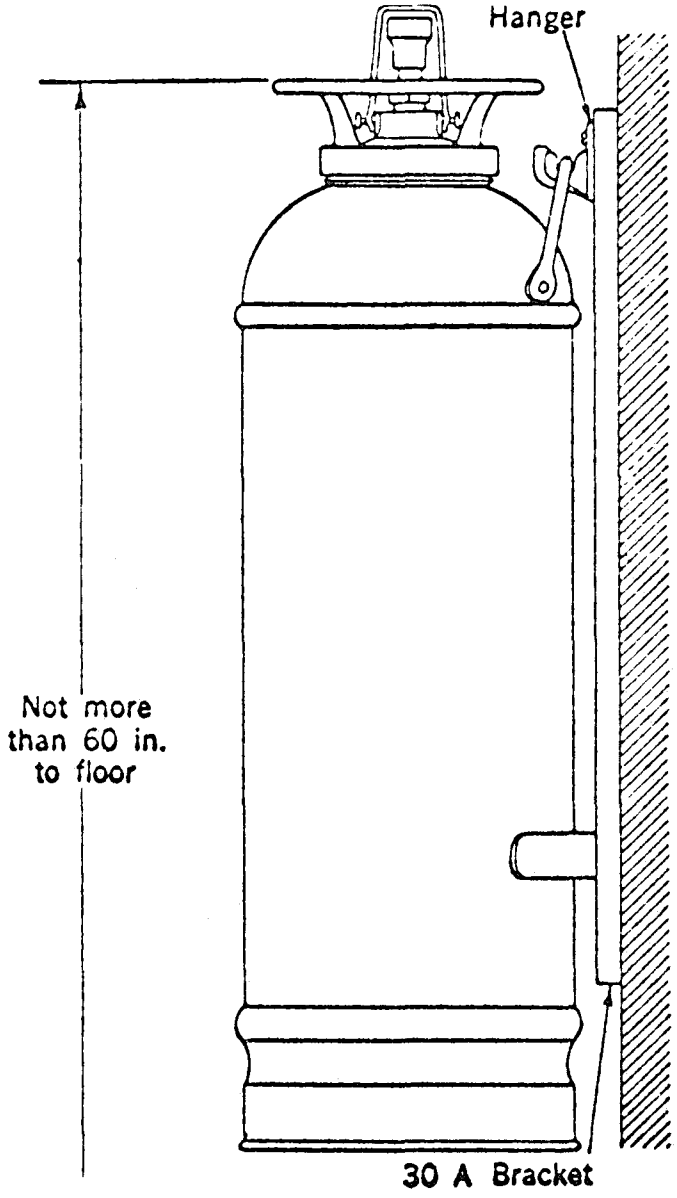
1.02 The water-type extinguisher replaces the soda acid extinguisher and supplements the CO_2 extinguisher for electrical equipment fires as outlined in 1.01.

1.03 This section is reissued to include the newly developed stored pressure water-type extinguisher (E-11).

2. DESCRIPTION—CARTRIDGE TYPE (E-7)

2.01 This extinguisher consists of a lead lined copper, stainless steel or brass tank of approximately 2 1/2 gallons capacity and uses plain water, which is expelled by the expansion of carbon dioxide from a metal cartridge located within the tank. The cartridge is attached to the underside of the extinguisher cap and is removed with the cap. A grooved puncturing pin attached to a plunger extends through the extinguisher cap and is directly above and at right angles to a disc in the top of the cartridge.

2.02 To discharge the extinguisher, the safety guard is pushed aside and the tank turned bottom up and bumped on the floor. The safety guard is omitted from the latest design thus eliminating the first step. This causes the plunger to be forced in, and the grooved pin to puncture the disc in the cartridge, and release the carbon dioxide into the extinguisher tank.



The water in the tank is expelled with sufficient force to throw an effective stream some 30 to 40 feet horizontally and continues for approximately 45 seconds, after which gas is emitted for a few seconds. The discharge of liquid ceases when the extinguisher is turned right side up, but the gas continues to escape and cannot be stopped until it is exhausted. A new pressure cartridge must be inserted and the tank refilled before the extinguisher can be used again.

2.03 On previously designed models, but omitted from the latest design, a "U" shaped hinged guard is placed over the outside end of the plunger to prevent accidental puncturing of the cartridge disc. When the extinguisher is to be discharged, this guard is pushed back and becomes fixed in the open position.

2.04 In case the guard is not pushed back when the extinguisher is to be used, the plunger will not be obstructed since the guard is of metal light enough to collapse when crushed to the floor under the weight of the extinguisher.

2.05 Cartridge: a bulb shaped cartridge (WF76) approximately 6 1/4 inches long and 1 3/4 inches in diameter replaces the old zinc coated grenade-shaped cartridge and the 12 inch cylindrical cartridge. The WF76 cartridge is designed without a screw-type safety cap and can be used in any Bell System standard cartridge operated water-type fire extinguisher.

3. STORED PRESSURE TYPE (E-10 and E-11)

3.01 These extinguishers consist of a stainless steel, lead lined copper or brass tank of about 2 1/2 gallons capacity and uses plain water. The remainder of the tank is filled with compressed air at approximately 100 pounds per square inch pressure. This type of extinguisher permits intermittent use, whereas the cartridge type must expel the entire 2 1/2 gallons at one time or the air charge is lost. This extinguisher is also more easily operated and requires less maintenance than the cartridge type. The tank is charged with air through a standard tire valve. A siphon tube extends from the head assembly to the bottom of the tank so that the unit is operated in an upright position.

3.02 The extinguisher is operated by removing the pull pin and squeezing the handles together. It is operated in the upright position and not inverted as is required with the cartridge type extinguisher.

3.03 The new extinguisher (E-11) has the same shell construction as the standard extinguisher (E-10) except for the nozzle and hose assembly. The E-11 incorporates a solid tube extension to the regular hose, terminating in a spray nozzle which emits a fine water spray when the pressure is released as opposed to a stream of water as emitted from the E-10.

4. LOCATION

4.01 Water-type extinguishers are subject to freezing and therefore should not be located in spaces where freezing temperatures may be encountered. If, however, it is considered necessary to place the water-type fire extinguisher in locations where freezing temperatures are prevalent, antifreeze solutions should be added to the water. It is important in these cases to make sure that a properly labeled tank is selected and that the solutions used conform with the manufacturers' specifications. The Bell System standard extinguishers are not suitable for antifreeze solutions (not properly labeled). Water-type fire extinguishers suitable for antifreeze solutions are available only through local purchase.

4.02 In the cartridge operated extinguishers, the carbon dioxide which is held under pressure in the cartridge, is subject to a rapid rise in pressure where temperatures above normal are experienced. It is desirable, therefore, to locate these extinguishers away from hot surfaces and out of the direct rays of the sun. In general, the clearance between extinguishers and radiators or uncovered heating pipes should be at least two feet. This distance may be reduced to six inches in the case of covered pipes.

4.03 Extinguishers should not be located where they are subject to mechanical injury from moving objects.

5. MOUNTING

5.01 Extinguishers should be mounted in a vertical position so that the hanging strap straddles the three prongs of the 30A type bracket.

5.02 Where extinguishers are placed on free standing columns, arrangements for mounting may include bands encircling the column or if it has been predetermined in what

locations they will be required, considerations should be given to include mounting arrangements when the columns are constructed.

6. METHOD OF OPERATION

Cartridge Type (E-7)

6.01 To operate this cartridge type extinguisher, proceed as follows:

(a) Remove the extinguisher from the mounting bracket and carry it to the fire in an upright position.

(b) Invert tank after pushing aside the safety guard on those extinguishers so equipped.

(c) Hold the tank by the handle in the bottom with the hose in the other hand.

(d) Bump plunger in tank cap onto the floor.

(e) Direct the water discharge at the fire from as safe a distance as is effective.

(f) Stop liquid discharge by inverting the tank to normal position when fire is completely extinguished. In the upright position the gas will continue to be expelled, until depleted.

(g) Return plunger to normal position before unscrewing cartridge to avoid the possibility of the edges of the metering groove picking up scrapings from cartridge disc.

Stored Pressure Type (E-10)

6.02 To operate this stored pressure type extinguisher, proceed as follows:

(a) Remove extinguisher from mounting bracket.

(b) Remove the pull pin from the handle assembly.

(c) Discharge by squeezing the handle sections together.

(d) Direct the water discharge at the fire from as safe a distance as is effective.

(e) Stop the liquid discharge by releasing the squeezing action of the handles.

Stored Pressure Type (E-11)

6.03 To operate this stored pressure type extinguisher, proceed as follows:

(a) Remove the extinguisher from the mounting bracket.

(b) Remove the pull pin from the handle assembly.

(c) Hold tank by handle in the upright position with the hose in the other hand.

(d) Discharge by squeezing handle sections together.

(e) Direct the discharge at the fire from as close a distance as is practical and safe. The spray nozzle is designed to be used by directing the spray from a right angle position. This permits the operator to stand with either the left or right side of his body exposed to the fire. The hose section has a polyvinyl chloride extension handle attached to it which permits the operator to achieve a higher elevation with the nozzle.

(f) Stop the liquid discharge by releasing the squeezing action on the handles.

6.04 Observe the following precautions:

(a) Do not use water-type extinguishers on fires involving flammable liquids, oils or greases.

(b) Do not use water-type extinguishers E-7 and E-10 on fires involving live electrical equipment. On fires involving live electrical voltages up to 340 volts, the use of the E-11 is recommended.

(c) Do not return discharged or partially discharged - extinguishers to their mounting brackets.

7. MAINTENANCE

7.01 Maintenance of water-type fire extinguishers is covered in Section 770-340-503.