

SODA-ACID TYPE FIRE EXTINGUISHERS

1. GENERAL

1.01 The soda-acid type fire extinguisher is used on fires in telephone buildings which do not involve telephone equipment, flammable liquids, oils or greases, or live electrical equipment such as power boards, power plant apparatus or elevator machinery.

1.02 The soda-acid extinguisher is replaced by the water type extinguisher in equipment spaces and should be used as far as possible only in locations where the action of chemicals used on a fire will not contribute as seriously to the fire damage as is the case in equipment spaces.

1.03 This section is reissued to suggest that, if at the time of the annual refill any extinguisher caps are found without a pressure relief hole, such a hole should be provided as covered in Paragraph 6.07.

2. DESCRIPTION

2.01 The extinguisher consists of a lead lined copper tank of about 2-1/2 gallons capacity, containing water mixed with sodium bicarbonate and a bottle half full of sulphuric acid. The liquid is expelled by inverting the tank causing sulphuric acid to be mixed with the sodium bicarbonate solution resulting in a chemical action generating carbon dioxide gas, the pressure of which forces the liquid out of the hose with sufficient force to throw an effective stream some 30 feet. This discharge commences almost immediately after the tank is inverted and continues for about 50 seconds until all the liquid is gone. The discharge of liquid ceases when the extinguisher is turned right side up, but the gas continues to escape and can not be stopped until the chemical action has been completed. The extinguisher must be recharged before it can be used again. The details of a typical extinguisher are shown by Fig. 1.

3. LOCATION

3.01 Soda-acid extinguishers are subject to freezing and their action becomes sluggish at temperatures of 40°F. or lower and,

therefore, are not located in spaces where the temperature may be lower than this figure.

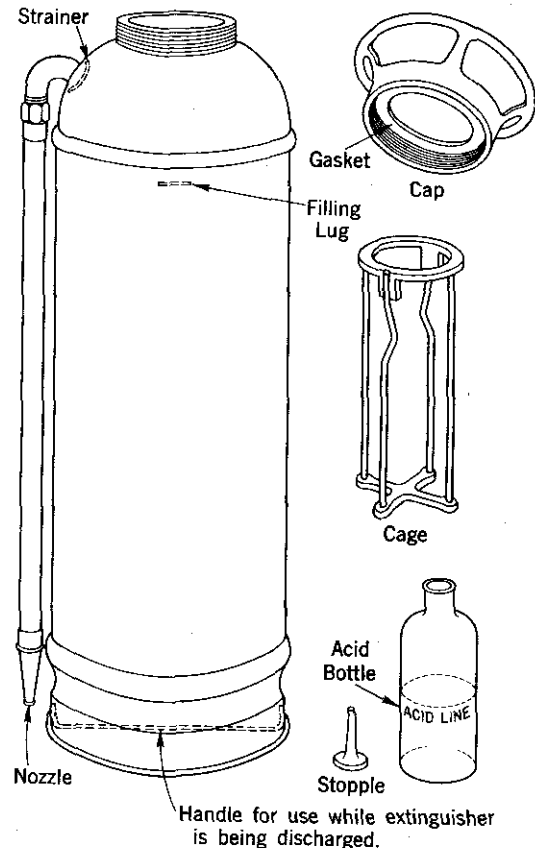


Fig. 1

3.02 Extinguishers are not located where they are subject to mechanical injury from moving objects.

4. MOUNTING

4.01 Extinguishers are mounted as shown by Fig. 2.

4.02 Where extinguishers are placed on free standing columns, arrangements for mounting may include metal bands encircling the

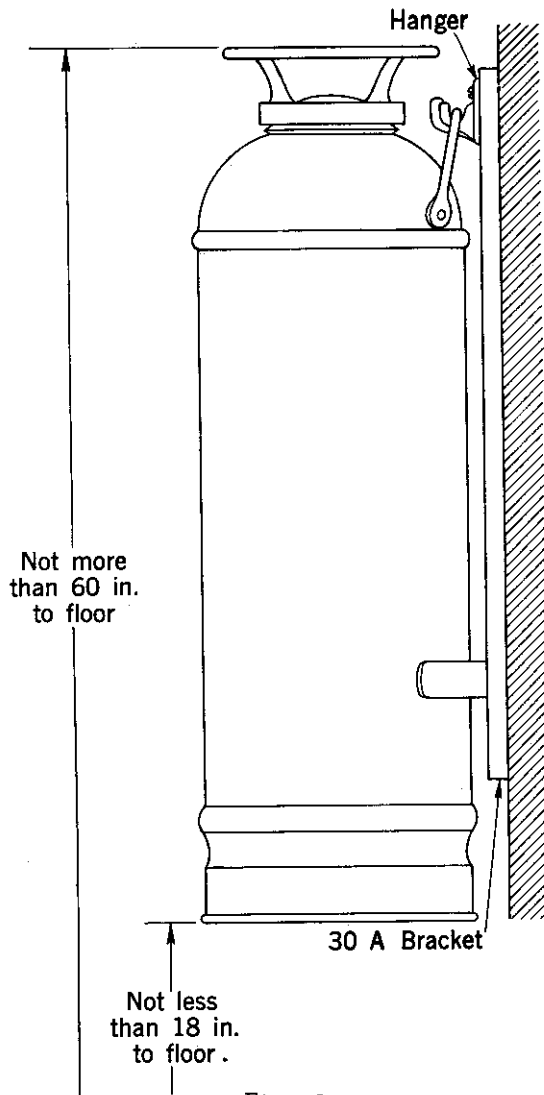


Fig. 2

column or if it has been predetermined in what locations they will be required, consideration should be given to including mounting arrangements when the columns are constructed.

4.03 The extinguisher is mounted and the lower guides are bent so that it will hang in a vertical position.

5. METHOD OF OPERATION

5.01 To operate the extinguisher, proceed as follows:

- (1) Remove extinguisher from mounting bracket and carry to fire in upright position.

- (2) Hold hose and extinguisher cap handle in one hand, directing the nozzle at the fire, and invert tank holding it by the handle in the bottom with other hand.
- (3) Direct discharge at fire from a distance of 5 feet if possible.
- (4) If impossible to stand so close, move away as the stream is effective up to about 30 feet.
- (5) Play stream at base of flames and follow flames with stream.
- (6) Stop liquid discharge by inverting tank to normal position when fire is completely extinguished.
- (7) Do not use soda-acid type extinguishers on fires involving telephone equipment, flammable liquids, oils or greases.
- (8) Do not use soda-acid type extinguishers on fires involving live electrical equipment such as power boards, power plant apparatus or elevator machinery.
- (9) Do not return discharged or partially discharged extinguishers to their mounting brackets.

6. MAINTENANCE

(A) Inspection

6.01 Soda-acid type extinguishers should be inspected at intervals for the following items:

- (1) Hose is in good condition.
- (2) Nozzle opening is unobstructed.
- (3) Hose coupling is tight at tank outlet.
- (4) Dents are not evident on the extinguisher body at or near the upper or lower horizontal seams. Such dents tend to weaken these seams, and extinguishers so damaged should be discarded at once.
- (5) Finish is in good condition.
- (6) Mounting bracket is securely fastened to wall.
- (7) Record tag is attached and extinguisher has been recharged within the required time.

(B) Recharging

6.02 Extinguishers are discharged and refilled at least once a year to make sure they are in proper condition for immediate use. An inspection of the items mentioned in Paragraph 6.01 should also be made at this time.

Method

6.03 Remove the extinguisher from its mounting bracket and carry it to a suitable location where it can be discharged. This may be done either outside the building or inside into a service sink partly filled with water. Leaking gaskets, defective hose connections, or other irregularities are noted as the extinguisher is discharged and corrected during the recharging procedure. Only one extinguisher per floor should be taken out of service at one time.

6.04 Warning: In all the following operations where the extinguisher is to be taken apart, safety goggles and rubber gloves should be used.

6.05 Take extinguisher to a location where a new charge can be provided and where the tank can be refilled. Unscrew the cap and remove the cage and bottle from the tank.

6.06 The tank is examined on the inside for corrosion and for deposits of soda or other foreign material which should be scraped off with a suitable piece of wood. The tank should then be scrubbed with a stiff brush and rinsed thoroughly. The strainer should be cleaned and the nozzle and hose should be examined and flushed out to insure that the discharge passage is open. The cap, cage and stopple should be scrubbed with a brush and carefully rinsed.

6.07 It has long been a requirement of the Underwriters Laboratories that manufacturers of this type extinguisher provide a

means of pressure relief during removal of the cap. For many years it has accordingly been the practice of the manufacturers to provide a small hole through the cap threads which, as the cap is unscrewed, will release any pressure that might be present. Probably most extinguishers in the Bell System already are provided with this hole in the cap but if upon the annual refilling any are found without it, they are modified locally. The hole should be about 3/16-inch diameter with its center about 9/32 inch from the bottom edge of the cap.

6.08 The extinguisher is then carefully recharged in accordance with the following procedure irrespective of any recharging instructions that may be on the extinguisher name-plate or on the recharge package. 1-1/2 pounds of bicarbonate of soda is thoroughly mixed with about 2-1/2 gallons of lukewarm water. The temperature of the water should not exceed 100°F. The mixing is done outside the tank in order to insure that the soda is thoroughly dissolved. Undissolved soda may clog the hose or nozzle. The tank is filled to the filling lug, taking care not to pour any sediment into it. Filling the tank to levels above the filling lug reduces the air chamber volume and may result in excessive working pressure. Preservatives to prevent stagnation or solutions to lower the freezing point are not used.

6.09 The cork or cap and label, if any, should be removed from a new bottle of acid and the bottle placed in the cage; a floating label may clog the outlet strainer. If the stopple is not a part of the cap assembly, it should next be put in place in the acid bottle. At this time, determine that the bottle is not so high, as to prevent the extinguisher cap from being screwed down properly on the tank. Also, check to see that the stopple is free to move out of the bottle for proper release of the acid and that the bottle is so held in the cage that it can not slide down on the stopple when the tank is inverted. These conditions can be checked best by placing the cage, bottle, stopple and extinguisher cap together as they are in regular assembly and determining with the fingers that the conditions mentioned are met.

6.10 Replace the rubber cap gasket with a new one. Coat the threads of cap and tank lightly with vaseline and screw the cap on the tank as tightly as possible by hand only, exercising care to insure that all threads are properly engaged. A bar or rod should not be used to tighten the cap. The same cap must always be replaced on the tank from which it was removed; in this connection it is suggested that all recharging operations be completed on one extinguisher before starting operations on the next.

6.11 The date of recharging, etc., is recorded on the tag provided for this purpose. This tag is shown on Fig. 3.

6.12 The finish of the extinguisher is examined and polished or painted as required. The hose should not be painted. When the paint is sufficiently dry the extinguisher may be returned to its original location.

6.13 Extinguishers are emptied before shipping to other locations.

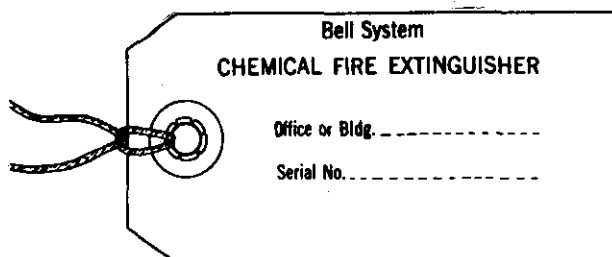


Diagram of the front side of a tag. It is a rectangular tag with a rounded top-left corner. A rope is tied through a ring at the top-left. The text on the tag is as follows:

Bell System
CHEMICAL FIRE EXTINGUISHER

Office or Bldg.

Serial No.

Front Side

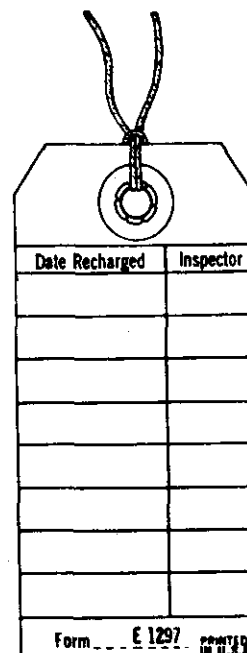


Diagram of the reverse side of the tag. It is a rectangular tag with a rounded top-left corner. A rope is tied through a ring at the top-left. The tag contains a table with two columns: 'Date Recharged' and 'Inspector'. Below the table is a form number and a note.

Date Recharged	Inspector

Form **E 1297** PRINTED IN U.S.A.

Reverse Side

Fig. 3