

FIRE PROTECTION APPARATUS

ROUTINE INSPECTION AND MAINTENANCE

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1. GENERAL

1.01 The purpose of this section is to provide the necessary information for the house service or other forces charged with the responsibility for routine inspection and maintenance of fire protection apparatus.

1.02 It is reissued because of extensive changes and to include information regarding the following:

- (a) Hydrostatic testing of water-type, foam-type and any of the soda-acid fire extinguishers remaining in use.
- (b) A change in the loss of weight tolerance for carbon dioxide (CO₂) fire extinguishers to ten per cent for all sizes.
- (c) To describe the procedure for inspecting and weighing the new disposable cylindrically shaped cartridge for the water-type fire extinguisher.

1.03 The newly developed disposable cartridge designated as WF-75 for the water filled cartridge-type extinguishers has been adopted as standard to replace the zinc coated grenade shaped cartridge (WF-53) which has been provided for some years. The new cartridge is approximately twelve inches long by one and one-eighth inch in diameter. To protect it from corrosion, it is brass clad and tin coated. Consequently, it does not require the use of a rubber jacket as with the grenade shaped cartridge. The new cartridge is threaded at the upper end and is screwed into the present cartridge holder the same as with the grenade shaped cartridge. When the cartridge is discharged or fails to meet weight requirements it is disposed of.

1.04 Complete descriptions of the fire protective apparatus covered in this section are given in the following sections:

- H43.110 } Water-Type Fire Extinguishers
- H54.602 }
- H43.120 } Soda-Acid Type Fire Extinguishers
- H54.603 }
- H43.130 } Foam-Type Fire Extinguishers
- H54.604 }
- H43.140 } Carbon Dioxide-Type Fire
- H54.605 } Extinguishers
- H43.150 } Asbestos Gloves
- H54.606 }
- H43.160 } Tarpaulins
- H54.333 }
- H43.210 } Standpipe and Hose Systems
- H54.607 }

2. HYDROSTATIC TESTING

2.01 The National Board of Fire Underwriters Bulletin No. 10 dated July 1955 recommends that water extinguishers of the soda-acid

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and carbon dioxide (CO₂) cartridge propelled types and also foam extinguishers must be given a hydrostatic pressure test at least once every five years.

2.02 Hydrostatic tests may be made by a qualified contractor, either on the premises, in a suitably equipped truck at the building site or at the contractor's service station. All tests shall be carried on in accordance with the procedures given in Section 71 of the above-mentioned Bulletin No. 10.

2.03 If any such extinguisher upon subsequent annual inspection shows evidence of mechanical damage, corrosion, or distortion of the shell as from freezing temperatures or from any other causes it may be unsafe for use. Therefore, regardless of the date of the last hydrostatic test the extinguisher is again given a hydrostatic pressure test before being returned to service.

2.04 Each extinguisher which favorably passes the hydrostatic test shall have an orange record tag Form E-4400 attached to it on which the following will be noted:

- (a) date of test
- (b) test pressure
- (c) name of person and concern making the test

2.05 All fire extinguishers less than five years old that are subject to periodic hydrostatic testing should have an orange record tag Form E-4400 attached. The year of installation should be posted on the tag on the first line in the "date" column and the word "installed" in the second column.

**3. MAINTENANCE OF CARBON DIOXIDE
FIRE EXTINGUISHERS**

(A) Inspection

3.01 Carbon dioxide type extinguishers should be inspected for the following items at least once each year or when placed in service:

- (1) **10 and 15 Pound:** That the wire seal is not broken. If broken, extinguisher should be weighed.

- (2) Hose is in good condition especially at couplings, and that couplings are dated for determination of 14-year safe hose life.

- (3) Nozzle is not broken and orifice is unobstructed.

- (4) Hose coupling is wrench tight at cylinder outlet and at nozzle.

- (5) Hose is looped back over valve handle and held in place by clip on side of extinguisher in such a way that lower edge of nozzle pointing downward is slightly above bottom of extinguisher.

- (6) Finish is in good condition.

- (7) Mounting bracket is securely fastened to wall.

- (8) Record tag is attached and extinguisher has been weighed within the required time.

(B) Weighing

3.02 Extinguishers should be weighed at least once a year to make sure they are in proper condition for immediate use. An inspection of the items mentioned in Paragraph 3.01 should also be made at this time.

Method

3.03 Weighing of extinguisher should be done with the aid of a spring balance coded No. 120 manufactured by John Chatillon and Sons of New York. The 5-pound extinguisher requires a more sensitive scale and the Chatillon No. 010 is suggested. The spring balance should be supported by a weighing bracket arranged to be attached to the extinguisher mounting bracket.

3.04 All extinguishers are marked with the cylinder weight and the horn and hose assembly weight so that the weight of gas can be checked without dismantling the parts. To determine that the extinguisher is in proper condition for immediate use, the following conditions should be met:

The total weight (by spring scale) should be not less than:

**STAMPED CYLINDER WEIGHT
PLUS**

STAMPED HOSE ASSEMBLY WEIGHT
PLUS
4½ POUNDS FOR 5-POUND
EXTINGUISHER
9 POUNDS FOR 10-POUND
EXTINGUISHER
13½ POUNDS FOR 15-POUND
EXTINGUISHER

The above method of determining if extinguishers meet the weight requirement shall be used irrespective of any conflicting instructions that may be on the extinguisher nameplate.

Recording Weight

3.05 If the extinguisher is within the required weight limit and otherwise satisfactory, it should be returned to its mounting bracket and the weight recorded on the tag Form E-1295 provided for this purpose.

3.06 Extinguishers which do not meet weight requirements should be carried to a suitable location in building service quarters where the noise of discharge would not be distracting or outside the building, and discharged. Where feasible the discharging may be done for training. The extinguishers should then be forwarded for recharge in accordance with local instructions.

3.07 Extinguishers which develop a leak such as may be evidenced by a hissing sound or the presence of frost about the valve assembly should be immediately replaced. The leaking extinguisher should be discharged and recharged as outlined in Paragraph 3.06.

3.08 Although the extinguishers are designed with an ample factor of safety and will withstand a reasonable amount of rough usage, care should be exercised while weighing or otherwise handling them to avoid dropping or subjecting the cylinder or valve to an excessive strain.

3.09 The hose assemblies for the two 10-pound hand wheel control extinguishers of different weights are interchangeable. The hose assemblies for the 10-pound trigger control and the 15-pound extinguishers are not interchangeable with those of any of the foregoing extinguishers. When ordering hose specify model number and manufacturer.

4. MAINTENANCE OF WATER-TYPE FIRE EXTINGUISHERS

(A) Inspection

4.01 Water filled cartridge type extinguishers should be inspected for the following items at least once each year or when put into service:

- (1) Safety guard is upright and plunger is not depressed.
- (2) Plunger catch operates freely.
- (3) Hose is in good condition.
- (4) Nozzle opening is unobstructed.
- (5) Hose coupling is wrench tight at tank outlet.
- (6) Dents are not evident on the extinguisher body at or near the horizontal seams. Such dents tend to weaken these seams, and extinguishers so damaged should be emptied, removed from service and immediately replaced. Discarded extinguishers should be classified as "junk" and returned through the usual lines of organization to the Western Electric Company branch house for disposition.
- (7) Finish is in good condition.
- (8) Mounting bracket is securely fastened to wall.
- (9) Record tag is attached and cartridge has been weighed within the required time.
- (10) Bears orange hydrostatic test record tag Form E-4400 to show that extinguisher has been given the prescribed hydrostatic test within five years. If Form E-4400 shows only the date of installation, check whether hydrostatic test will be due during the current year and, if so, report to supervisor.

(B) Weighing Cartridge

4.02 Extinguisher cartridges should be weighed at least once a year, the tanks cleaned out and refilled to make sure the extinguishers are in proper condition for immediate use. An inspection of the items mentioned in Paragraph 4.01 should also be made at this time.

Method for Grenade Shaped Cartridge

4.03 Remove the extinguisher from its mounting and carry it to a location where the cartridge can be weighed and the tank emptied, cleaned, and refilled. Only one extinguisher per floor should be taken out of service at one time, unless replacements are installed.

4.04 Care should be exercised in handling the cartridges to prevent possible damage to the disc since the rapid release of the gas will propel the cartridges with considerable force. Spare cartridges should be kept in the original container with the safety caps on them until required for use and should be stored in places where the temperatures are normal.

4.05 Unscrew the top cap and dry all parts thoroughly with a clean cloth. Remove the rubber jacket and unscrew the cartridge from the cartridge holder. In the case of extinguishers having a short rubber jacket, discard the lead gasket and replace with a new lead gasket (see Paragraph 4.14). Inspect the rubber jacket for possible defects and discard if unsuitable for reuse.

4.06 In the case of extinguishers having a short rubber jacket, remove the rubber cartridge gasket, inspect it for possible defects and discard if unsuitable for reuse. Only rubber gaskets having an extended lip can be re-used.

4.07 Dry the cartridge with a clean cloth and examine for any evidence of corrosion. Carefully remove any salts from the corrosion areas with a knife blade or suitable sharp tool. If any pitting is evident or if there is any corrosion at the cap the cartridge should be replaced. Good cartridges should now be weighed.

4.08 Scales per KS-6990 are used for weighing the cartridge. Before using the scales, the rubber tubes, provided during shipment over the four knife edges, should be removed and the balance of the scales checked. For cartridges having a stamped weight of about twenty-two ounces, a one pound and a 1/4-pound weight should be placed on the beam platform and the graduations on the beam used to obtain the actual weight down to 1/16 of an ounce. For cartridges having a stamped weight of about

thirty ounces, a one pound, a 1/2-pound, and a 1/4-pound weight should be used in a similar manner.

4.09 Weighing: The weight of the completely charged cartridge is stamped on the weight band and if the actual weight is not within 1/2 ounce of this value, the cartridge is unsatisfactory for use.

4.10 Recording Weight: If the cartridge is within the required weight limit and otherwise satisfactory, it should be re-used and the weight recorded on the white tag Form E-1296 provided for this purpose.

4.11 Discharged cartridges should be discarded rather than returned for credit. When discharged or underweight, the grenade shaped cartridges are replaced with the disposable cartridge (WF-75). See Paragraph 1.03.

4.12 Refilling Tank: The tank should be emptied and refilled each time the cartridge is weighed. After emptying the tank, it should be examined on the inside for corrosion and any foreign matter scraped from the tank walls with a suitable piece of wood such as the wood handle of a blade-type radiator brush. The tank interior should then be scrubbed with a stiff brush such as a wood-handled toilet bowl brush, using only clean water. Rinse 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 tank should be filled to the filling lug with clean cold water. Preservatives to prevent water stagnation or solutions to lower the freezing point should not be used.

4.13 Assembling: Clean the extinguisher cap with a dry cloth. In the case of extinguishers having a short rubber jacket, thoroughly dry the seating surfaces for the lead and rubber cartridge gaskets and the threaded area between these surfaces. See that the metering groove in the puncturing pin is unobstructed and note that the plunger catch operates freely. Make sure that the plunger is in the fully unoperated position, i.e., plunger pulled all the way out before inserting the cartridge or the gas will be discharged when the cartridge is screwed in. Replace the rubber cap gasket with a new one.

4.14 In the case of extinguishers having a short rubber jacket, place a rubber cartridge gasket over the neck of the lead covered cartridge with the lip down. Any tendency of the rubber to seize the cartridge will be minimized by applying powdered talc to the gasket. Also for these extinguishers, place a new lead gasket over the cartridge top and paint the area of the top within the gasket opening with one heavy coat of black asphaltum paint. Make sure that the lead gasket stays centered on the cartridge top.

4.15 In the case of extinguishers having a long rubber jacket neither the lead nor the rubber cartridge gasket nor the painting of the cartridge top with black asphaltum paint is required.

4.16 Keeping the cartridge dry, screw it into the cap as tightly as possible by hand, as it is important that the cartridge top assemble firmly in the holder. Proper assembly can be determined by observation through the ports opposite the puncturing pin. The top of the cartridge should be visible and there be about an $\frac{1}{8}$ " gap between the cartridge top and the puncturing pin.

4.17 In the case of extinguishers having a short rubber jacket, fit the rubber jacket over the lead covered cartridge in such a way that the bead on the jacket opening fits into the groove between the lip on the gasket and the bottom edge of the cartridge holder. Satisfactory seating is aided by pulling the rubber jacket out with the fingers at points below the gasket lip and allowing it to snap back in place. At the same time a part of the air can be exhausted by squeezing the jacket, in order that the water level in the tank will not be brought up to a higher point than originally intended.

4.18 In the case of extinguishers having a long rubber jacket, fit the rubber jacket over the cartridge in such a way that the bead on the jacket opening fits into the groove in the metal collar which projects downward from the bottom of the extinguisher cap. The rubber jacket is provided with four tabs around the neck to facilitate fitting it to the collar. Squeeze the jacket to emit entrapped air.

4.19 The threads of the cap and tank should be coated *lightly* with vaseline and the cap screwed on the tank as tightly as possible by hand only, exercising care to insure that all threads are properly engaged and that four full turns of the cap are given, engaging at least four full screw threads. Caps or tanks for water-filled type extinguishers should not be interchanged with those for soda-acid or foam extinguishers.

4.20 The finish of the extinguisher should be examined and cleaned (not painted) to restore good appearance, as required.

4.21 Extinguishers should be emptied and cartridge removed and packed separately before shipping to other locations.

Method for Disposable Cartridge

4.22 Remove the extinguisher from its mounting and carry it to the location where the cartridge can be weighed and the tank emptied and refilled. Only one extinguisher per floor should be taken out of service at one time unless replacements are installed. Inspect for the details given in Paragraph 4.01.

4.23 Unscrew the extinguisher top cap and dry all parts with a clean cloth. Unscrew the disposable cartridge from the cartridge holder. Dry the cartridge with a clean cloth and examine for possible corrosion especially at the top end.

4.24 *Weighing:* The weighing is done with the scales per KS-6990 as described in Paragraph 4.08. The weight of the charged cartridge is stamped on the jacket. If the actual weight is not within one half ounce of the stamped weight replace with a new cartridge.

4.25 *Recording Weight:* If the cartridge is within the required weight limit and otherwise satisfactory, the weight is recorded on the white tag Form E-1296 and the cartridge re-used.

4.26 After inspecting the tank both interior and exterior as described in Paragraph 4.01 and refilling the tank with water as described in Paragraph 4.12 the cylindrical cartridge is screwed hand tight into the cap.

4.27 See that the metering groove in the puncturing pin is clean and note that the puncturing pin and the plunger catch operate

freely. Make sure that the plunger is in the fully unoperating position before replacing the cartridge or the gas will be discharged when the cartridge is screwed into position. The threads of the top cap and tank should be lightly coated with vaseline. The top cap is screwed on the tank as tightly as possible by hand only, exercising care to insure that all threads are properly engaged, and that four full turns of the cap are given, engaging at least four full screw threads. The cap should be replaced on the same tank from which it was removed.

4.28 The finish of the extinguisher should be examined and cleaned (not painted) to restore good appearance, if required.

4.29 Extinguishers should be emptied and the cartridge removed and packed separately before shipping to other locations.

5. MAINTENANCE OF SODA-ACID TYPE FIRE EXTINGUISHERS

(A) Inspection

5.01 Soda-acid type extinguishers should be inspected for the following items:

- (1) Hose is in good condition.
- (2) Nozzle opening is unobstructed.
- (3) Hose coupling is wrench 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. Discarded extinguishers should be classified as "junk" and returned through the usual lines of organization to the Western Electric Company branch house for disposition.
- (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.
- (8) Bears orange hydrostatic test record tag Form E-4400 to show that extinguisher has been given the prescribed hydrostatic test

within five years. If Form E-4400 shows only the date of installation, check whether hydrostatic test will be due during the current year and, if so, report to supervisor.

(B) Recharging

5.02 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 5.01 should also be made at this time.

Method

5.03 Remove the extinguisher from its mounting bracket and carry it upright 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 unless replacements are installed.

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

5.05 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.

5.06 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 such as the wood handle of a blade-type radiator brush. The tank interior should then be scrubbed with a stiff brush such as a wood-handled toilet bowl brush using only clean water. Rinse 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.

5.07 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.

5.08 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. The bicarbonate of soda in the package is thoroughly mixed with about 2½ 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 as 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.

5.09 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.

5.10 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 and that four full turns of the cap are given, engaging at least four full screw threads. 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.

5.11 The date of recharging, etc, is recorded on the white tag Form E-1297 provided for this purpose.

5.12 The finish of the extinguisher is examined and cleaned (not painted) to restore good appearance, if required.

5.13 Extinguishers are emptied before shipping to other locations.

6. MAINTENANCE OF FOAM-TYPE FIRE EXTINGUISHERS

(A) Inspection

6.01 Foam-type extinguishers should be inspected for the following items:

- (1) Hose is in good condition.
- (2) Nozzle opening is unobstructed.
- (3) Hose coupling is wrench 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. Discarded extinguishers should be classified as "junk" and returned through the usual lines of organization to the Western Electric Company branch house for disposition.
- (5) Finish is in good condition.
- (6) Mounting bracket is securely fastened to wall.
- (7) Record tag Form E-1297 is attached and extinguisher has been recharged within the required time.
- (8) Bears orange hydrostatic test record tag Form E-4400 to show that extinguisher has been given the prescribed hydrostatic test

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within 5 years. If Form E-4400 shows only the date of installation, check whether hydrostatic test will be due during the current year and, if so, report to supervisor.

(B) Recharging

6.02 Extinguishers should be discharged (or emptied) 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 upright to a suitable location, preferably outside the building, for this purpose. Leaking gaskets, defective hose connections, or other irregularities should be noted as the extinguisher is discharged. Only one extinguisher per floor should be taken out of service at one time unless replacements are installed.

6.04 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 inner container from the tank.

6.05 Where it is not desirable to discharge the extinguisher, it may be emptied instead. When this is done, both the tank and the inner container should be completely drained, care being exercised in doing this not to mix the aluminum sulphate and soda solution. If emptied into a service sink, the soda solution should be poured into the sink first and thoroughly flushed down with water. The aluminum sulphate should then be emptied into the sink and flushed down with water.

6.06 The tank should be 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 such as the wood handle of a blade-type radiator brush. The tank interior should then be scrubbed with a stiff brush such as a wood-handled toilet bowl brush using only clean water 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, inner container and stopple should be scrubbed with a brush and carefully rinsed.

6.07 The extinguisher should then be recharged by carefully following the directions on the recharge packages furnished for this purpose. This generally involves thoroughly mixing the "B" solution containing bicarbonate of soda and a foam producing agent with lukewarm water. The temperature of the water should not exceed 100°F. The mixing should be done outside the tank in order to insure that the mixture is thoroughly dissolved. Undissolved soda may clog the hose or nozzle. The tank should be 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 pressures. Preservatives to prevent stagnation or solutions to lower the freezing point should not be used.

6.08 The recharge is completed by thoroughly mixing the "A" solution (aluminum sulphate) with water as directed and pouring it into the inner container which is then returned to the tank.

6.09 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 and that four full turns of the cap are given, engaging at least four full screw threads. The same cap, inner container and stopple must always be associated with the tank from which they were removed; in this connection it is suggested that all recharging operations be completed on one extinguisher before starting operations on the next.

6.10 The date of recharging, etc, should be recorded on the white tag Form E-1297 provided for this purpose.

6.11 The finish of the extinguisher should be examined and cleaned (not painted) to restore good appearance, if required.

6.12 Extinguishers should be emptied before being shipped to other locations.

7. MAINTENANCE OF ASBESTOS GLOVES

(A) Inspection

7.01 Gloves and container should be inspected at intervals for the following items:

- (1) Container cover opens freely.
- (2) Gloves should be removed from container, inspected and returned folded together, with fingers up. They should be loose enough to be easily removed.
- (3) Container finish is in good condition. Container should be painted if required.
- (4) Mounting bracket is securely fastened.

8. MAINTENANCE OF TARPAULINS

(A) Inspection

8.01 Portable tarpaulins and container should be inspected annually for the following items: See Fig. 1.

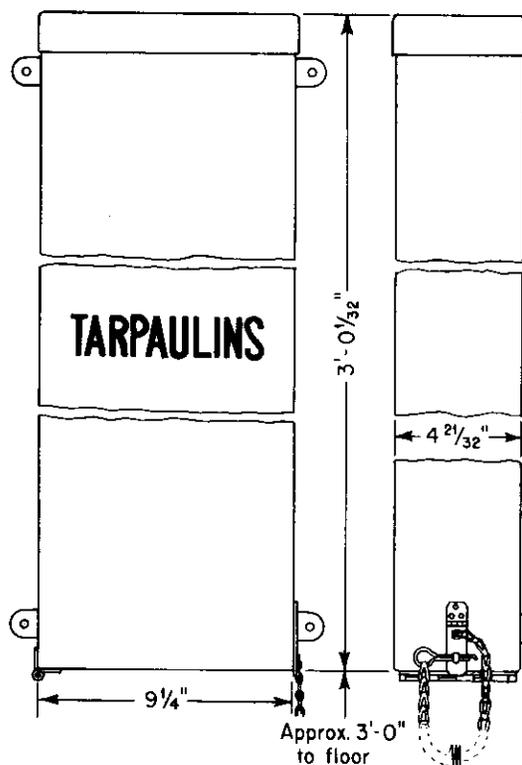


Fig. 1

- (1) Bottom door of container opens freely.
- (2) Tarpaulins should be removed from container and inspected for possible defects. They should then be properly folded and rolled and replaced in the container. A check should be made to insure that they are loose enough to be easily removed.
- (3) Container finish is in good condition. Container should be painted if required. It should not be painted same color as background.
- (4) Container is securely mounted.

(B) Folding and Rolling Portable Tarpaulins

8.02 When tarpaulins are placed in the storage container, they must be folded and rolled in the proper manner to permit them to be placed and removed easily. The proper method for folding and rolling is shown in Fig. 2.

9. MAINTENANCE OF FIRE HOSE AND STANDPIPE SYSTEMS

9.01 Tests and Inspection:

- (a) While the data given herein represents current views as to procedures and recommendations it is understood that they may be altered to meet differing local fire code regulations and conditions but only when the latter are more stringent.
- (b) Each standpipe station and associated equipment, whether capped or equipped with hose, valves, etc, is inspected annually. Should any defects be found in the course of the inspection or during the performance of regular duties they should be remedied. If the defects or faults can be taken care of at the time they are found, this should be done. Otherwise, the defects are reported for prompt attention.
- (c) A fire hose is not to be used, under any circumstances, for other than fire fighting purposes. Violation of this rule may result in hose being missing, defective or useless in case of fire.
- (d) Fire hose stations should be free of any obstacle and nothing is permitted to obscure hose racks or to block the door of a hose

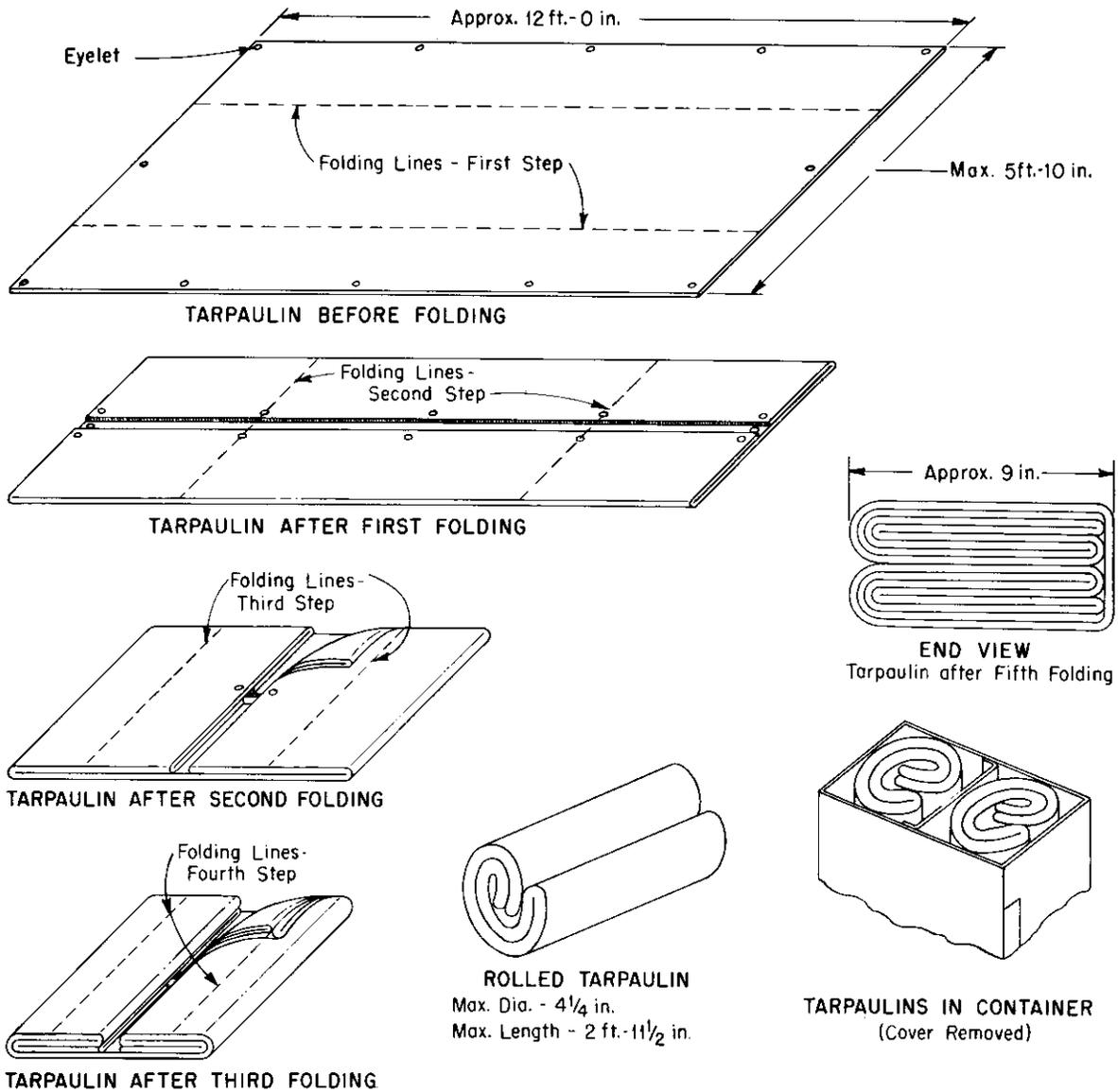


Fig. 2

cabinet or closet. Inspection is made to see that doors open readily.

9.02 Fire Hose Inspection:

(a) Inspection of fire hose is made annually.

However, while unranking of the hose on exposed racks is done annually, it is required only every three years for hose on enclosed racks.

(b) When unlined linen hose becomes wet for any reason it deteriorates rapidly. For this reason, hydrostatic testing of the hose is not recommended.

(c) Should a hose become wet, it should be replaced with Underwriters Laboratories approved unlined linen hose unless the procedure for drying is followed as outlined in the directions given in the latest issue of pamphlet No. 198, "Care of Fire Hose," issued by the National Fire Protective Association.

(d) The exterior of the hose is cleaned by vacuuming. The hose rack, pipe fittings and hose cabinets are wiped clean with a damp or treated dust cloth.

(e) Indications of moisture are looked for, giving special attention to the loop close to the point where the hose is connected to the valve. If there is discoloration of the hose at the valve, such as would occur from water leakage, twisting of the hose by hand at the point of connection may cause it to tear indicating need for removal of the defective section and resetting of the coupling.

(f) The threads of the couplings are inspected and any injured or defective couplings are replaced. They are so adjusted that they can be easily tightened by hand. Oil or grease is not used, as they are likely to cause deterioration of hose and rubber washers. Threaded fittings are cleaned of any corrosion or foreign matter. Where couplings are polished, care is taken to keep the polish from coming in contact with the hose as the chemicals in metal polishes can damage it.

(g) The rubber washers, both at the hose valves and at the nozzles are examined and any that are lacking in strength or elasticity are replaced.

(h) After unranking and examining the hose for cracks, breaks or other evidence of deterioration, it is reconnected and replaced on the rack, making the folds in new locations to avoid creating a permanent set or breaks at the folds.

(i) The date of the inspection and inspector's name or initials should be entered in the gray linen tag (Form E-4307, "Fire Hose Inspection") attached to the rack. Inspection should include assurance of the Underwriters Laboratories approval label which should be affixed to the hose, the date of the manufacture of the hose, and manufacturer's identification.

(j) Consideration should be given to the replacing of unlined linen hose on exposed racks after fifteen to twenty years and on enclosed racks after twenty-five to thirty years, depending upon local conditions.

9.03 Standpipe Systems Inspection:

(a) The National Board of Fire Underwriters pamphlet No. 14 entitled "Standpipe and Hose Systems" specifies that hydrostatic testing of dry standpipe systems be done at intervals of not less than five years. This applies also to the dry portion of piping in a wet standpipe system between the check valve in the fire department inlet pipe and the outside multiple connection.

(b) Dry standpipes over ten years old should be tested with air at a pressure not exceeding twenty-five pounds per square inch to determine their tightness before water is turned into them for hydrostatic test.

(c) Hydrostatic testing of wet standpipes, except for dry sections, is not considered essential, when the system is supplied directly and only from a street water main. Hydrostatic testing of standpipes served by both a roof gravity or pressure tank and from the street mains is done, at least every three years. Such a test will determine the tightness of tank check valves. In such cases, tank supply control valves are turned off during the test so that in the event of a bad break, contents of tanks will not be lost.

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(d) Fire pumps are usually turned over at weekly intervals with capacity tests made every three years. It is desirable that fire pump capacity tests be tied in with hydrostatic standpipe tests when required by local authorities.

(e) Where fire pumps are installed, pump capacity tests are made only after a hydrostatic test of the standpipe system has been made. The roof hose outlet should be opened to permit a limited flow through this highest outlet to assure an unobstructed standpipe before the system is returned to service.

(f) Hydrostatic testing of standpipe systems is done with a manually operated hydraulic pump. Standpipes are hydrostatically tested at a pressure of fifty pounds in excess of normal static pressure or, where fire pumps are installed, fifty pounds above maximum pump discharge pressure.

(g) The main gate valve in the water supply (sealed open) is checked to ascertain that it is in the proper open position.

(h) At the Fire Department connections, the check valves are inspected to determine that they are in working condition.

(i) The valves at hose connections are checked to assure that they are closed tightly to prevent leakage of water. The drip connec-

tions (where installed) at hose valves are checked to determine that they are open. This is done to avoid the possibility of any water that may leak past the valve from getting into the hose.

(j) All check valves throughout the standpipe system should be examined to make sure they are in proper working order.

Note: Check valves should be located on all supply lines from each separate water supply serving the standpipe system including the Fire Department (multiple) connections.

(k) The end valve of each standpipe system, located, for example, on the roof in the case of buildings over three stories in height, is opened to establish that there is a free flow of water. Adequate provision is made for carrying off the water to avoid water damage.

(l) Test procedures may differ with each installation and it is recommended that local fire departments be asked to cooperate with Telephone Company personnel in carrying on tests of standpipe systems.

(m) Where frequency of routine is suggested appropriate records should be maintained to make sure that such routines are being performed.

Form E-4400

Bell System
HYDROSTATIC TEST RECORD

FOR WATER FILLED, SODA ACID
AND FOAM FIRE EXTINGUISHERS
OFFICE OR BLDG. _____
SERIAL NO. _____

OBVERSE

**HYDROSTATIC
TEST RECORD**

DATE	PRESSURE	INSPECTOR	
		COMPANY	PERSON

REVERSE