

## INSULATING GLOVES TESTS AND INSPECTIONS

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### 1. GENERAL

**1.01** This section covers the methods of testing, inspecting, and storing insulating gloves in a central office environment, and cable vault. Information on care and use of the insulating gloves is also included. The information in this section covers the insulating gloves per specifications AT-6697 and AT-8439.

**1.02** The reason for reissuing this section are listed below. Since this reissue is a general revision, arrows used to indicate changes have been omitted. This issue affects the Equipment Test List.

- (1) To delete the B, C, and E insulating gloves and revise associated text and figures
- (2) To delete the leather protector gloves and revise associated text and figures
- (3) Add new paragraphs 2.05, 5.04(4), 9.07(d), and 10.04
- (4) To make minor changes as required
- (5) To add the F insulating glove
- (6) To rate the D insulating glove manufacture discontinued (Mfr Disc.).

**1.03** Insulating gloves are provided to protect central office personnel from electric shock. The gloves should be worn whenever abnormally high voltage conditions are suspected or indicated on main distributing frame protectors or other central office equipment.

**1.04** Each employee is responsible for determining the condition of insulating gloves, as outlined in paragraphs 5.02, 5.04, and 5.05, before the gloves are used.

### NOTICE

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**1.05** Insulating gloves provided for central office personnel shall be kept in a readily accessible place on or near the main distributing frame. Additional insulating gloves shall be provided at other locations when, in the judgment of the local supervisor, they are necessary. For example, insulating gloves shall be kept near power equipment and electric service switches when this apparatus is not located in the same room with the main distributing frame.

**1.06** The B glove bag supersedes and is interchangeable with the C glove bag.

**1.07** A reference between the insulating glove size and the compatible fabric liner glove is shown in Table A.

**TABLE A**  
**COMPATIBLE SIZES FOR**  
**INSULATING GLOVE—FABRIC LINER**

INSULATING GLOVE SIZE	FABRIC LINER
8	6
9½	7
10	7
11	8
12	8

## 2. PRECAUTIONS

**2.01** Except in emergencies, such as to prevent serious injury or loss of life, employees shall not handle electric power wires, or associated switches, and shall arrange to have the necessary work required on these circuits performed by the electric company. Similarly, employees shall not handle telephone wires that are known or suspected to be energized until the contact conditions have been cleared by the electric company. Employees wearing insulating gloves must avoid body contact with wires, frames, and any other objects which might be energized.

**2.02** Insulating gloves are inspected and subjected to an electrical test to ensure their insulating

value when purchased from the manufacturer, and periodically thereafter under the company's established routine. ***Employees and storerooms shall see that insulating gloves are returned for periodic electrical tests in accordance with local routine.***

**2.03** Insulating gloves shall be inspected and tested in accordance with Parts 5 and 6 of this section.

**2.04** Insulating gloves shall never be worn inside out as this stresses the curved portions of the gloves. Attack by ozone is more pronounced at points where rubber is stressed.

**2.05** Gloves shall not be marked or have any adhesive tapes or labels applied to them by other than authorized personnel.

## 3. DESCRIPTION

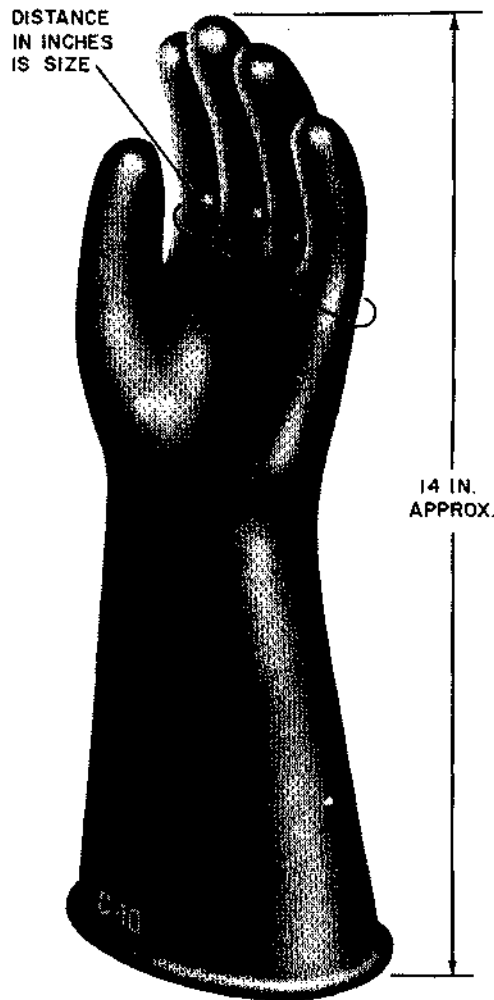
**3.01** All insulating gloves intended for central office use are of the standard cuff type with sizes 8, 9 1/2, 10, 11, and 12 available in types D (Mfr Disc.) and F, and in an all black type called Insulating Gloves. The size is equal to the approximate number of inches around the glove measured as shown in Fig. 1. The length of each glove, measured from the tip of the second finger to the outer edge of the gauntlet, is approximately 14 inches (Fig. 1).

**3.02** D (Mfr Disc.) and F insulating gloves and the all black insulating gloves are of sufficient thickness to eliminate the need for protector gloves. They are primarily intended for central office use. The D (Mfr Disc.) and F gloves are made of two plies of rubber, the outer ply black and inner ply red, to aid in determining the physical condition of the gloves.

## 4. B GLOVE BAG

**4.01** The B glove bag (Fig. 2) is provided for carrying and storing insulating gloves and associated fabric liner gloves.

**4.02** The bag is made of cotton duct with a liner of polyethylene. A web strap, terminated in a snap hook and a D ring is provided for suspending the bag from the main distributing frame, and from other necessary locations.

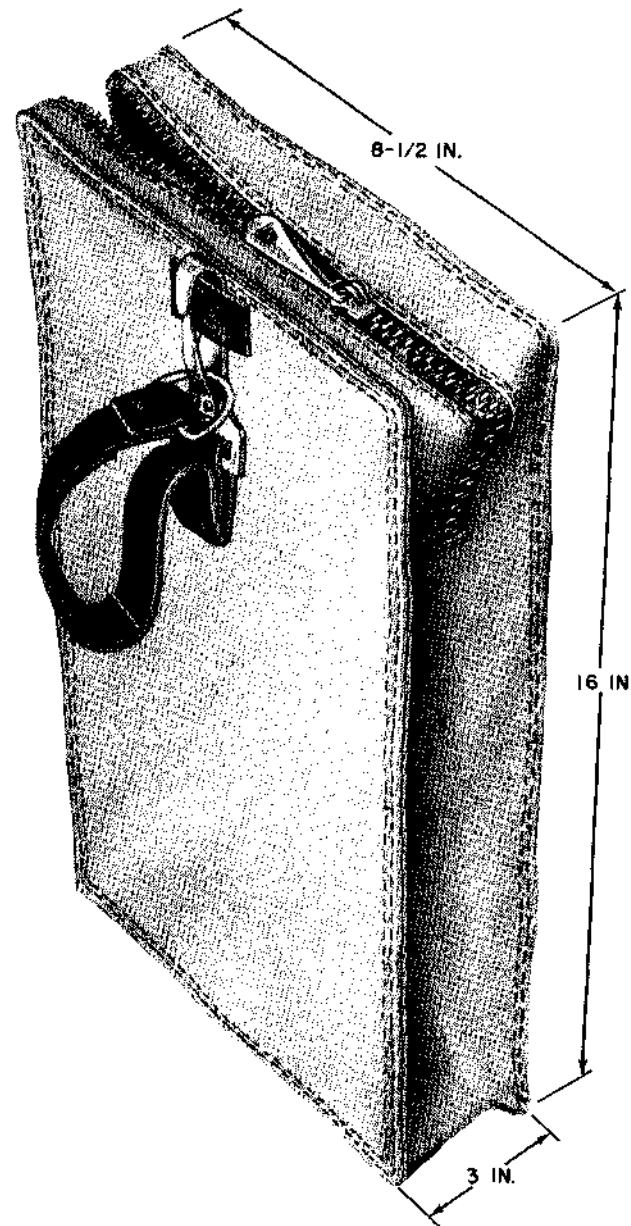


**Fig. 1—D Insulating Glove**

**4.03** Dead air space is provided within the bag by the polyethylene liner and by the use of a zipper instead of a flap closure. The bag should be tightly zippered when gloves are stored in them to minimize ozone deterioration of the insulating gloves.

## 5. MECHANICAL INSPECTION

**5.01** Employees shall at all times assume the responsibility for determining that their insulating gloves are in good condition. The appearance of the gloves should indicate neither deterioration from an electrical or a mechanical standpoint. Employees shall verify that they are being used within the specified electrical test period



**Fig. 2—B or C Glove Bag**

as indicated by the "Return for Test" date stamped on the back side of the gauntlet.

**5.02** Employees shall inspect the insulating gloves in accordance with Parts 5 and 6 as follows:

- (a) At the time the gloves are issued
- (b) Each time before using them

(c) Each time after using them

(d) A minimum of once each month.

**5.03** The supervisor shall inspect the insulating gloves periodically and shall see that all instructions are followed. The frequency of this inspection shall be at intervals of not more than 6 months.

**5.04** A visual inspection of insulating gloves shall be made to determine their condition. If any one of the following conditions is found to exist or if the condition of the gloves is such that there is any doubt as to their safety, they shall be exchanged at once for a pair in good condition in accordance with the locally established routine. Inspections should include the following in the sequence indicated:

- (1) Visually check return date for testing.
- (2) Pull between the fingers looking for cracks and for evidence of red color showing through D (Mfr Disc.) and F type gloves. Look for signs of abrasions or deterioration on the palm or back of the glove. ***This test must be performed on the inner and outer surfaces.***
- (3) Squeeze the fingers of the glove together and let go, live rubber will return to normal position. If there is a sign of stickiness, check glove for deterioration and if in doubt, exchange gloves.
- (4) Inspect the gloves over the entire surface (inside and out). Roll the rubber gently between the hands to expose defects and imbedded foreign matter.
- (5) The air test should be performed last. (See paragraphs 6.01 and 6.02.)

**5.05** When performing the above tests with the two-color D (Mfr Disc.) and F insulating gloves, the appearance of one color showing through the other means that the glove is defective and not safe to use. It shall be discarded in accordance with local routine.

## 6. AIR TEST OF INSULATING GLOVES

**6.01** The air test (Fig. 3) shall be made on insulating gloves only when the conditions listed under 5 are satisfactory. Make this test as follows:

- (a) Hold the glove at each side of the edge of the gauntlet. Slightly stretching the gauntlet will provide a slight air seal.
- (b) Revolve it about the edge of the gauntlet as an axis, thus rolling it toward the palm and confining the air in the palm and fingers.
- (c) Hold the rolled-up gauntlet in one hand.
- (d) At head level, squeeze the palm of the glove with the other hand to put the confined air under pressure.

**6.02** Should the rigidity of the gloves preclude the procedure described in paragraph 6.01, an alternate method (Fig. 4) to air test the insulating gloves can be performed in the following manner:

- (a) Place the glove on a clean, flat surface (desk or table).
- (b) Bring the edges of the gauntlet together, and by using your fingers, roll up the gauntlet toward the palm of the glove, 1-1/2 turns.
- (c) Fold the rolled gauntlet ends together and hold with one hand.
- (d) At head level, squeeze the confined air with the other hand.

**6.03** Any puncture would be readily detected by feeling the escaping air against the face or by sound when the glove is air tested at head level.

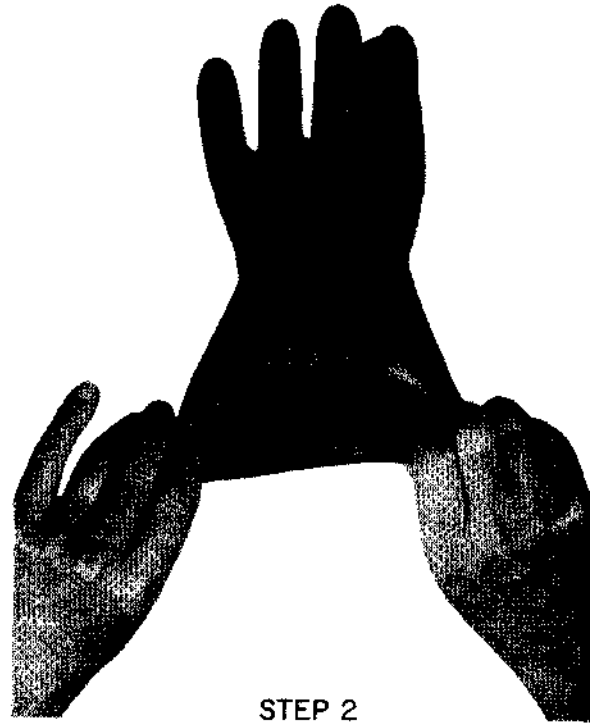
**6.04** If a puncture is found or if the condition of the gloves is such that there is any doubt as to their safety, they shall be exchanged at once for a pair in good condition in accordance with local routine.

## 7. ELECTRICAL TEST

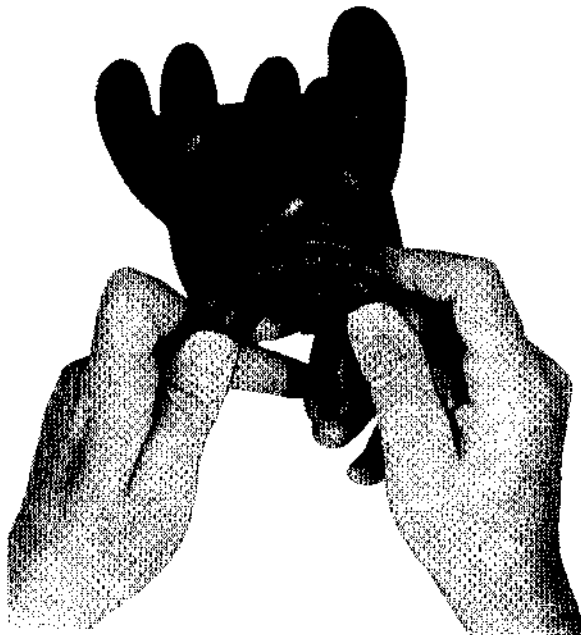
**7.01** Insulating gloves which pass the mechanical inspection described in Part 5 shall be



STEP 1



STEP 2



STEP 3



STEP 4

Fig. 3—Air Test Operations 1-2-3

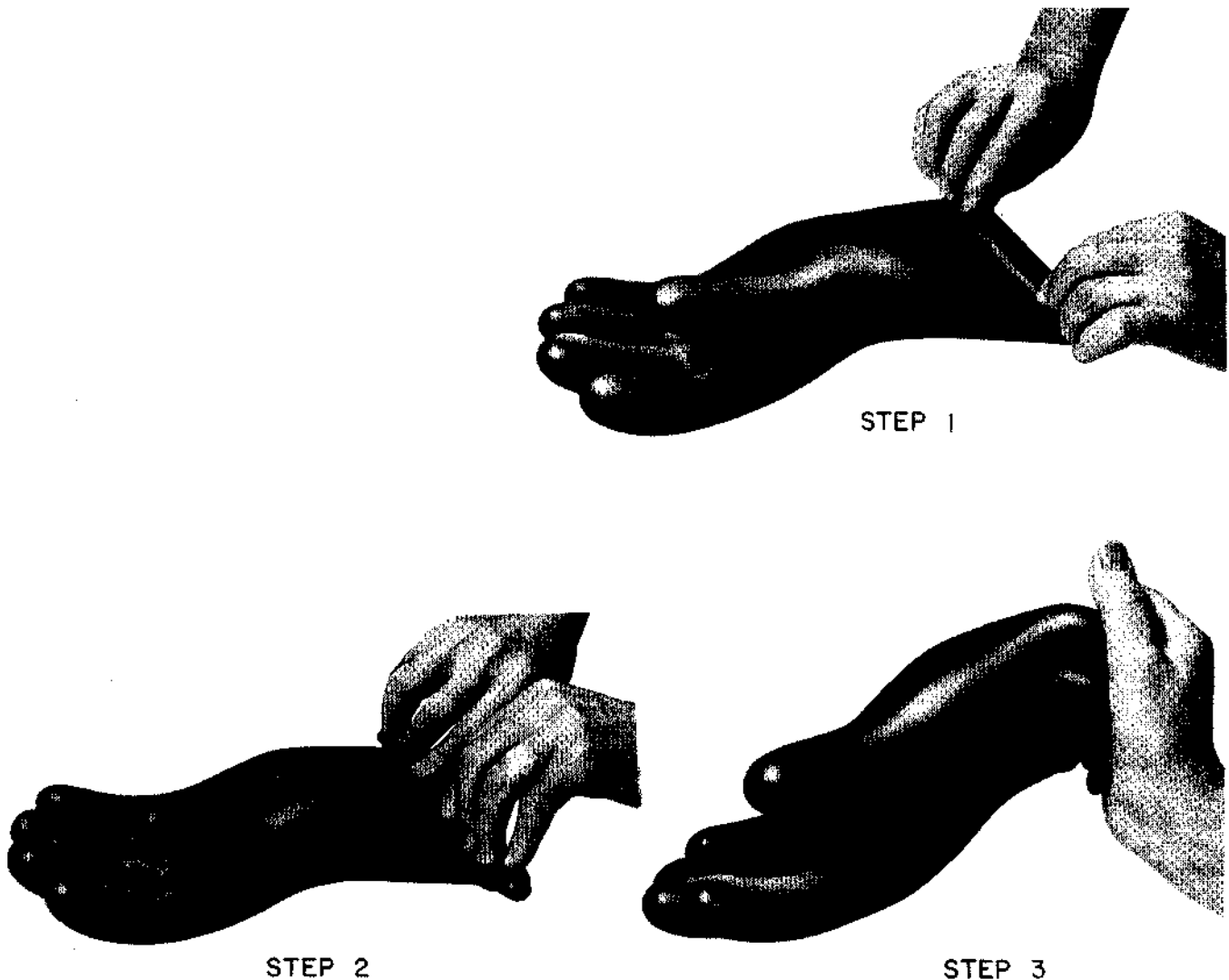


Fig. 4—Alternate Air Test

returned for electrical test under established routines, in accordance with the latest "Return for Test" date stamped on the gloves. This applies to insulating gloves, whether held in stock or assigned for use.

**Note:** The "Return for Test" date stamped on new insulating gloves furnished by the manufacturer will indicate a period of 12 months after the initial test is made. On all subsequent retests of gloves, the "Return for Test" date stamped on the glove will indicate a period of 9 months.

**7.02** Another pair of insulating gloves should be made available before returning a pair of gloves for the periodic electrical test.

**7.03** New insulating gloves furnished by the manufacturer will be stamped as follows:

"W.E. Co. RETURN FOR TEST (month) (year)" on the outside of the gauntlet of each glove (See Fig. 5, Stamp No. 2.)

"INSP. W.E. Co. INC. NO. (Report No.)" on the inside of each glove near the top of the gauntlet.

**7.04** Insulating gloves, initially retested under established routines will be stamped:

"(Initials of Testing Laboratory) PASSED" on the outside of the gauntlet of each glove. (See Fig. 5, Stamp No. 1.)

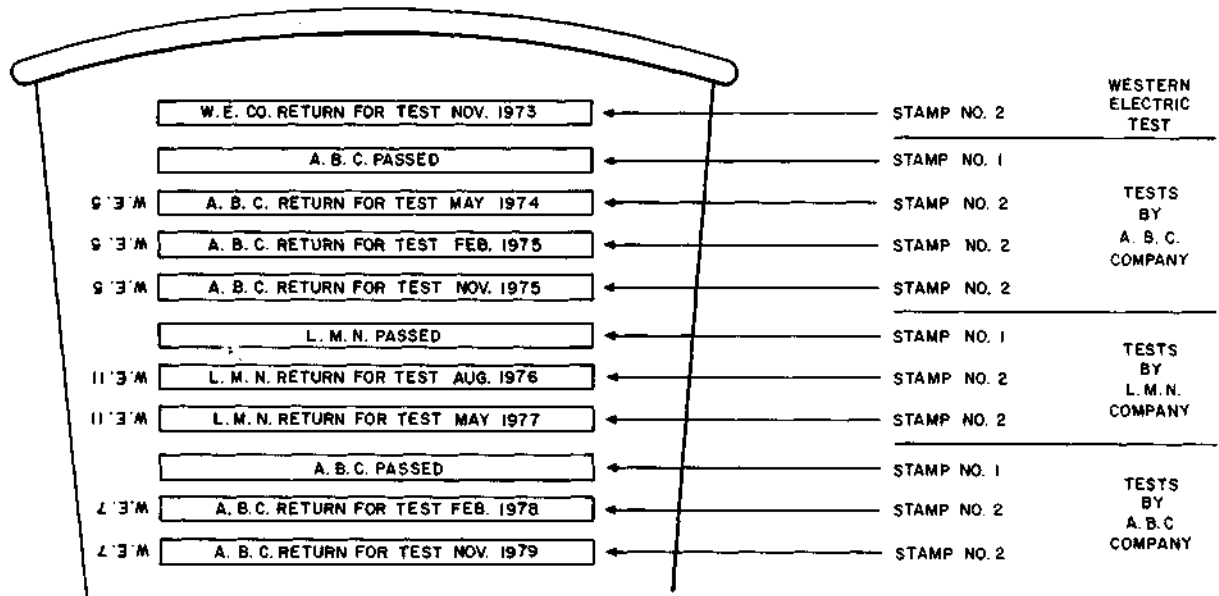


Fig. 5—Method of Stamping Accepted Gloves

“WE (Inspector’s number) (Initials of Testing Laboratory) RETURN FOR TEST (month) (year)” on the outside of each glove. (See Fig. 5, Stamp No. 2.)

**7.05** If insulating gloves are returned each time to the same testing laboratory, a new “WE (Inspector’s number) (Initials of Testing Laboratory) RETURN FOR TEST (month) (year)” stamp only will follow the last one. If they are returned to a different laboratory, new stamps as described in paragraph 7.04 shall follow the last old stamp.

**7.06** The method of stamping each insulating glove found to meet the electrical test and inspection requirements is shown in Fig. 5.

## 8. CLEANING OF INSULATING GLOVES

**8.01** Insulating gloves shall be cleaned when they become wet from perspiration or when the gloves are subjected to contact with dirt, mud, paint, or other foreign matter. Perspiration, mud, dirt, and other foreign matter that does not adhere firmly to the glove shall be removed with clear water. Paint shall be removed as soon as practical, as some oils, if allowed to remain on the glove, will have an injurious effect on the glove.

**8.02** The following method has been found satisfactory for removing paint from the glove:

- Wipe off gloves with a dry cloth to remove as much wet paint as practical.
- Clean the entire glove thoroughly with a cloth moistened with KS-14356 cleaner (dry cleaning fluid), KS-7860 petroleum spirits, or KS-19578, L1, cleaner (trichloroethane). Do not use an excessive amount of the cleaning fluid and do not wipe over “Return for Test” date.

**Danger:** This cleaning shall be done in a well-ventilated location, as these materials are either flammable or their vapors constitute a health hazard. As soon as each glove has been cleaned, it should be wiped thoroughly dry with a dry, clean cloth. Do not use gasoline.

Gasoline has a very low flash point and hence its use presents a much more serious fire hazard than does the use of the cleaning fluid or petroleum spirits, which have a much higher flash point. KS-19578, L1, cleaner is nonexplosive.

**8.03** After insulating gloves are used, they should be thoroughly dried so the moisture from the hands will not become entrapped and cause the glove to deteriorate. Each time after use, gloves should be turned inside out and placed flat to dry. After the gloves have been dried, they shall be turned right side out and placed in the containers ready for use.

**Note:** It is important that the gloves remain in the inside out position no longer than is necessary to dry them out. Extended periods of time in the inside and out position can result in severe surface cracks.

## 9. STORAGE

**9.01** The quality and physical condition of insulating gloves will be maintained if they are properly stored. Folds, kinks, and creases can develop stresses in the rubber where ozone attack will cause cracking.

**9.02** Fabric liner gloves shall be stored with the insulating gloves so that they are available for use. Each liner shall be dry before being stored.

**9.03** Fabric liner gloves shall be separated from the insulating gloves before being stored.

**9.04** Store the insulating gloves between the fabric liner and place them vertically in the B glove bag with the gauntlet down.

**9.05** Stack the two insulating gloves, gauntlet down, between the two fabric liner gloves.

**Note:** The sandwiching of the insulating gloves between the liner gloves will give added protection in the event a sharp object may press against the storage bag.

**9.06** Grasp all gloves together at the cuff in one hand and slide the hand holding the cuffs into the bag (Fig. 6). Insulating gloves must be stored with the fingers up to prevent them from collapsing or putting undue stress on the finger area (Fig. 7). When closing the zipper, keep one finger inside, guiding the zipper, to ensure that the insulating gloves are not pinched.

**9.07** Insulating gloves deteriorate even when not in use. This deterioration is caused by

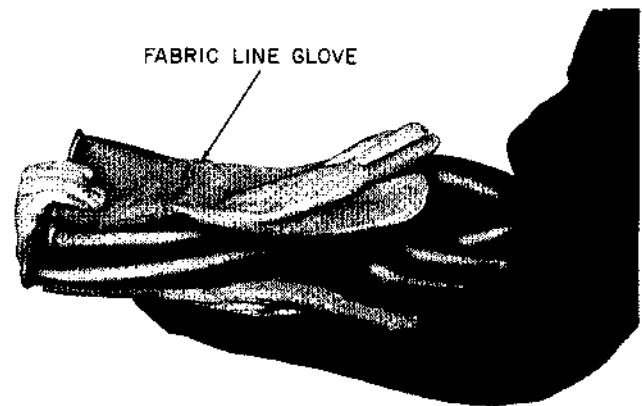


Fig. 6—Stacking Gloves



Fig. 7—Placing in Storage Bag



ozone in the atmosphere reacting with the glove material to produce fine surface cracks. Ozone deterioration will be materially reduced if the gloves are stored as outlined in paragraphs 9.05 and 9.06 without bends or folds and protected from light, edged tools, and from pressure due to heavy objects. Do not store insulating gloves in unventilated rooms containing ozone producing apparatus or equipment such as commutator-type electric motors and generators. Never place insulating gloves near steam pipes, radiators, or in places where they will be subject to heat, as heat will impair the strength of the glove material. For maximum protection of the gloves, one of the following methods of storage shall be employed:

- (a) With tool bags, insulating gloves and fabric liner gloves shall be kept tightly zippered in the glove bag, which should be attached to the tool bag.

**Note:** Care should be taken to attach the glove bag so it will be flat against that side of the tool bag which is away from the body when the tool bag is carried.

- (b) If they are stored in lockers, desks, or offices, insulating gloves shall be kept in the chipboard container in which they are supplied by the manufacturer, or in which they are returned from the routine electrical test. This container affords reasonable protection against ozone deterioration because of restricted air circulation and the fact that a reaction between ozone and cellulose decomposes the former into a less active oxygen.
- (c) When the insulating gloves and associated fabric liner gloves are being carried for use intermittently, they shall be kept tightly zippered in the glove bag, attached to the body belt.
- (d) When the gloves are stored in a central office, they shall be placed in a B glove bag as described in paragraphs 9.05 and 9.06. The

bag shall be kept tightly zippered and shall be hung on or near a frame, being careful to avoid the conditions defined in paragraph 9.07.

## 10. ELECTRICAL TEST UPDATE PROCEDURE

**10.01** Storerooms are responsible for insulating gloves in the storerooms and employees are responsible for insulating gloves which they have in the field. The dates of "Return for Tests" are stamped upon the backs of the gloves and in the space on the boxes provided for that purpose.

**10.02** Employees shall see that gloves in the field are returned to the storeroom or office prior to the "Return for Test" date. Replacement gloves shall be available before returning the gloves to be tested.

**10.03** Storerooms shall see that all gloves in their possession are returned for inspection on the dates indicated to the Western Electric Branch House or other authorized inspection agency. If, however, gloves are held beyond this date, they shall not be used or issued until retested.

**10.04** Gloves to be returned to the Western Electric Company or to other authorized inspection agencies shall not be bundled together with tape.

**10.05** All insulating gloves, before being returned to the Western Electric Company or other authorized agent, shall be given a careful inspection in accordance with Part 5 and a careful test in accordance with Part 6. Gloves with obvious defects shall be junked in accordance with Part 11.

## 11. DISPOSITION OF DEFECTIVE INSULATING GLOVES

**11.01** Gloves with obvious defects should have the front cut open from the fingers to the top of the gauntlet and should be disposed of as junk in accordance with the locally established routine.