



INSULATING GLOVES, LEATHER PROTECTORS, FABRIC LINERS, AND GLOVE BAG DESCRIPTION AND USE

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1. GENERAL

1.01 This section covers the description, care, and maintenance of insulating gloves provided for the protection of employees against electric shock and the precautions to be followed in the use of insulating gloves. Information on leather protector gloves, fabric liner gloves, and the B glove bag is also included.

1.02 This section has been reissued to:

- (a) change paragraph 7.05 to agree with the ASTM Standard D120-79a.

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- (b) delete information on the B, C, and D insulating gloves.
- (c) delete information on the B and C leather protectors.
- (d) include information covered in ASTM 496-80, In Service care of insulating Gloves and Sleeves.

1.03 The B and C insulating gloves have been superseded by the E insulating glove. The D insulating glove has been superseded by the F insulating glove.

1.04 The B and C leather protectors have been superseded by the D leather protector.

1.05 The appropriate size D leather protector glove is to be worn over the E and F insulating glove at all times when used in connection with outside plant operations. The purpose of the D leather protector is to eliminate abrasion and puncture of the rubber insulating glove.

1.06 The E and F insulating glove can be used in central office operations without the D leather protector glove.

1.07 The E insulating glove is identified in the ASTM D-120 Standard as Type I, Class I and the F insulating glove as Type I, Class II.

2. PRECAUTIONS

2.01 Except in emergencies, to prevent serious injury or loss of life, craftspersons 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. Craftspersons shall not handle telephone wires that are known or suspected to be energized until the contact conditions have been cleared by the electric company. ***Craftspersons wearing insulating gloves must avoid body contact with wires, poles, vehicles, and any other objects which might be energized.***

Insulating gloves are designed to provide outside plant forces protection against electrical shock from the phase to ground voltage of power utility distribution lines. The F insulating gloves provide protection against voltages between 8.7 Kv and 20

Kv phase to ground (these are the phase to ground voltages of 15 Kv and 34.5 Kv phase to phase distribution lines, respectively). The E insulating gloves provide protection against phase to ground voltages up to and including 8.7 Kv. The D insulating gloves are not to be used by outside plant forces.

2.02 Craftspersons must be familiar with the precautions to be followed in rescuing a craftsperson from a power contact as described in Sections 010-100-012 and 010-100-013.

2.03 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 established routine of the company. **Insulating gloves must be returned for periodic electrical tests in accordance with local routine.**

2.04 The RETURN FOR TEST date on new gloves from the manufacturer will indicate a period of 12 months after the initial proof test is made. On all subsequent retests of the gloves the RETURN FOR TEST date will show a period of 9 months.

2.05 Field inspection of insulating gloves shall be conducted in accordance with Parts 7 and 8 of this section.

2.06 Insulating gloves shall never be worn or stored inside out as this stresses the curved portions of the gloves which will lead to accelerated deterioration.

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

3. INSULATING GLOVES

3.01 E and F insulating gloves are the straight-cuff type and are available in Sizes 9-1/2,10,11, and 12. 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).

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3.02 The E and F insulating gloves are of sufficient thickness to eliminate the need for protector gloves when used for central office operations.

3.03 The E insulating gloves consist of two plies of rubber, the outer ply black and the inner ply of contrasting color (red or yellow), to aid in determining the physical condition of the gloves. Leather protector gloves must always be worn over these gloves when in outside plant use. Protectors are not necessary when used in the central office. The E insulating rubber gloves are marked as shown in Table B.

3.04 The F insulating gloves consist of two plies of rubber, the outer ply black and the inner ply of contrasting color (red or yellow), to aid in determining the physical condition of the glove. **The proper size D leather protector gloves must be used.** The F insulating gloves are marked as shown in Table C.

4. LEATHER PROTECTOR GLOVES

4.01 The D leather protector gloves (Fig. 2) must be worn with F insulating gloves and may be worn with E insulating gloves for outside plant operations. Leather protector gloves do not provide protection from electrical shock and shall **never be worn except over** rubber insulating gloves. Leather protector gloves shall not be worn as work gloves.

4.02 The D leather protector gloves, feature an elastic shirring in place of the strap and buckle and shorter but wider fingers to facilitate fitting over the larger F rubber insulating gloves. Five sizes are available for use over the E and F insulating gloves. (See Table A.)

4.03 Leather protector gloves shall be given reasonable care in their use. Oil, grease, paint, etc., on the palm and finger surfaces of the gloves will impair their usefulness for work operations. Such foreign matter should be immediately wiped off the gloves with a soft, dry cloth.

4.04 Inspect leather protector gloves before and after using them. Remove all foreign particles imbedded in the surface, especially splinters of wood or metal, since they could damage the rubber insulating gloves.

4.05 After visually inspecting the leather protector gloves, check the inner portion of the glove for sharp or foreign objects.

5. C FABRIC LINER GLOVES

5.01 The C fabric liner gloves (Fig. 3) are form fitting gloves made of knit cotton cloth, equipped with 3-inch wide fabric gauntlets, and laminated with polyvinyl chloride.

5.02 The C fabric liner gloves are available in five sizes for use with E, or F insulating gloves. (See Table A.)

5.03 The C fabric liner gloves may be worn inside all types of insulating gloves for warmth in cold weather and for absorbing perspiration in warm weather.

6. B GLOVE BAG

6.01 The B glove bag (Fig. 4) is provided for carrying and storing insulating gloves and associated leather protector and fabric liner gloves.

6.02 The bag is made of cotton duck 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 body belt.

6.03 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 it to minimize ozone deterioration of the insulating glove.

6.04 Insulating gloves should not be stored near a heat source, electrical generators or electrical apparatus.

7. INSPECTION OF INSULATING GLOVES

7.01 Craftpersons shall at all times assume the responsibility for determining that insulating gloves are in good condition. The appearance of the gloves should not indicate deterioration from an electrical or a mechanical standpoint. Employees shall verify that they are being used within the specified electrical test period as indicated by the "Return for Test" date stamped on the back side of the gauntlet.

7.02 Craftpersons shall inspect the insulating gloves in accordance with Parts 7 and 8 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.

7.03 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.

7.04 A visual inspection of insulating gloves shall be made to determine their condition. If any one of the following conditions 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 the locally established routine. Inspections should include the following in the sequence indicated.

- (1) Visually check return date for testing.
- (2) Pull the fingers to stretch the rubber in each finger crotch. Look for evidence of contrasting color (red or yellow) showing through the black on E, and F rubber insulating gloves. Look for signs of deterioration or abrasions on the palm, finger area or back of glove.
- (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, imbedded foreign material, and solvent and/or oil damage. (See paragraph 7.05 and 7.06.)
- (5) The air test should be performed last. (See paragraphs 8.01 and 8.02).

7.05 When performing the above test with the two-color E and F insulating rubber gloves, the appearance of contrasting color showing through the black on the outside of the glove means that the glove is *not safe* to use.

7.06 When the inspection is made with the glove turned inside out, there may be imbedded material of contrasting color (black) on the inside of the glove surface. These surface irregularities can appear due to inherent difficulties in the manufacturing process. These irregularities may appear as indentations, protuberances (bulges), or imbedded foreign material that are acceptable provided that:

- (a) No such irregularities appear in the palm-side or in the finger or thumb crotches of the gloves.
- (b) When indentations are observed the gloves must be returned for test.

Note: Evaluations of indentations require a special measuring device to determine if the indentations conform to the ASTM 120-79a thickness standard.

- (c) Any protuberance (bulge) tends to blend into a smooth shape when stretching the material.
- (d) Imbedded foreign material remains in place when the glove is folded and stretches with the material surrounding it.

8. AIR TEST OF INSULATING GLOVES

8.01 The air test (Fig. 5) shall be made on insulating gloves only when the conditions listed under paragraph 7.04 are satisfactory. The test is made as follows.

- (1) Hold the glove at each side of the edge of the gauntlet. Slightly stretching the gauntlet will provide a slight air seal.
- (2) 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.

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- (3) Hold the rolled-up gauntlet in one hand.
- (4) At head level, squeeze the palm of the glove with the other hand to put the confined air under pressure.

8.02 An alternate method (Fig. 6) to air test the insulating gloves can be performed in the following manner.

- (1) Hold the glove at each end of the gauntlet, allowing the gauntlet end to attain maximum opening.
- (2) 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.
- (3) Fold the rolled gauntlet ends together and hold with one hand.
- (4) At head level, squeeze the confined air with the other hand.

Note: Because of the rigidity of the F insulating gloves, the glove should be placed on a clean surface (desk or table) and rolled up to trap the air as described in paragraph 3.02 (2) and (3).

8.03 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.

8.04 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.

9. CLEANING OF INSULATING GLOVES

9.01 Insulating gloves shall be cleaned when they become wet from perspiration or when the gloves are subjected to contact with dirt, mud, paint, creosote, 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 and creosote 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.

9.02 The following method has been found satisfactory for removing paint or creosote from the glove

- (a) Wipe off gloves with a dry cloth to remove as much wet paint or creosote as practical.

Note: 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.

- (b) 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 (trichlorethane) or equivalent. Do not use an excessive amount of the cleaning fluid and do not wipe over "Return for Test" date or any other stamped markings.

9.03 After insulating gloves are used, they should be thoroughly dried so the moisture from the hands will not become entrapped and cause the gloves to deteriorate. Each time after use, gloves should be turned inside out and placed flat to dry. Excess moisture may be wiped off with a clean, dry cloth or paper towel. As soon as the gloves have been dried, they shall be turned right side out and placed in the containers ready for use.

It is important to keep gloves out of direct sunlight and ultraviolet light sources and away from electrical discharges while turned inside out. Insulating gloves turned inside out and exposed to such elements are extremely susceptible to ozone and ultraviolet light degradation.

10. STORAGE

10.01 The quality and physical condition of insulating gloves will be maintained if they are properly stored. Folds, kinks, and creases can develop a weakness in the rubber and decrease the life expectancy.

10.02 Fabric liner gloves and leather protector gloves, where required, shall be stored with

the insulating gloves so that they are available for use. Each of these gloves shall be dry before being stored.

10.03 Fabric liner gloves and leather protector gloves shall be separated from the insulating gloves before being stored.

10.04 Store the insulating gloves vertically in the B glove bag with the gauntlets down and between the fabric liner gloves and the leather protector gloves.

10.05 The storage method is as follows: Stack a protective glove palm down, the an insulating glove palm up, the fabric liners, the other insulating glove palm down, and the last protective glove palm up.

Note: This method is used as an extra precaution to prevent damage to the insulating gloves from possible splinters or creosote that may be on the leather protector gloves. In addition, the sandwiching of the insulating gloves between the protector gloves will give added protection in the event a sharp object may press against the storage bag.

10.06 Grasp all gloves together at the cuff in one hand and slide the hand holding the cuffs into the bag (Fig 7). Insulating gloves must be stored with the fingers up to prevent them from collapsing or putting undue stress on the finger area (Fig. 8). When closing the zipper, keep one finger inside, guiding the zipper, to ensure that the insulating gloves are not pinched.

10.07 Insulating gloves deteriorate even when not in use. This deterioration is caused by 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 10.05 and 10.06 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 excessive 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.

- (1) On motor vehicles or cable splicing trailers, insulating gloves and associated leather protector and fabric liner gloves shall be kept in the glove bag, tightly zippered and stored in locations suitable for that purpose. They are not to be exposed to edged tools or pressure from weighted objects.
- (2) With tool bags, insulating gloves and associated leather protector 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.

- (3) When the insulating gloves and associated leather protector and fabric liner gloves are being carried for use intermittently, they shall be kept tightly zippered in the glove bag attached to the body belt.
- (4) 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.
- (5) When kept in central offices, the insulating gloves and fabric liners shall be kept in the glove bag tightly zippered and hung in a convenient, obvious, and easily accessible location. Keep away from sources of extreme heat, ozone generation, and physical abuse.

11. DISPOSITION OF INSULATING GLOVES REQUIRING ELECTRICAL TEST

11.01 Storekeepers 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.

11.02 Craftspersons 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.

Note: The "Do Not Disburse After" date that appears on the glove carton is intended for Manufacturer distribution only and does *not* apply to Bell Operating Companies.

11.03 Storekeepers shall see that all gloves in their possession are returned for inspection on the dates indicated to the Manufacturer or other authorized inspection agency. If, however, gloves are held beyond this date, they shall not be used or issued until retested.

11.04 All insulating gloves, before being returned to the authorized agent, shall be given a careful inspection in accordance with Part 7 and a careful test in accordance with Part 8. Gloves with obvious defects shall be rendered useless in accordance with Part 12.

12. DISPOSITION OF DEFECTIVE INSULATING GLOVES

12.01 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.

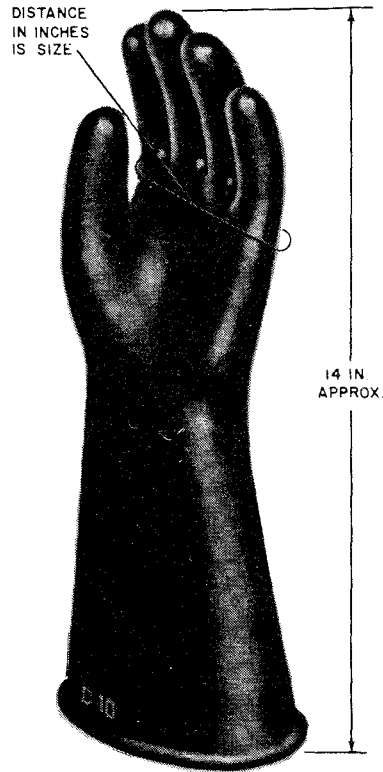


Figure 1 - Insulating Glove Size

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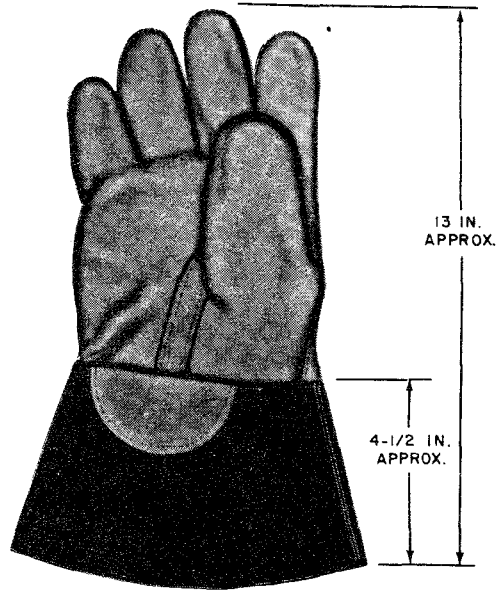


Figure 2 - Leather Protector Glove

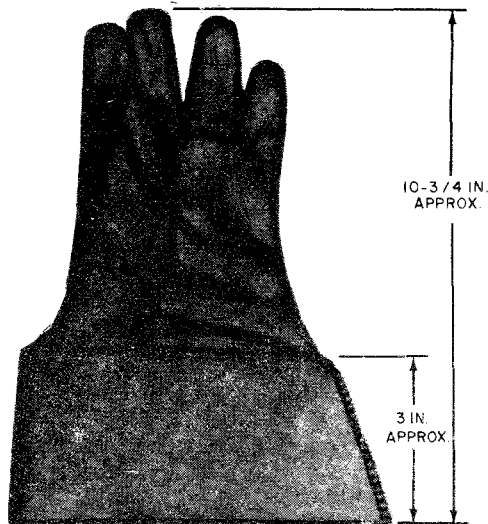


Figure 3 - Fabric Liner Glove

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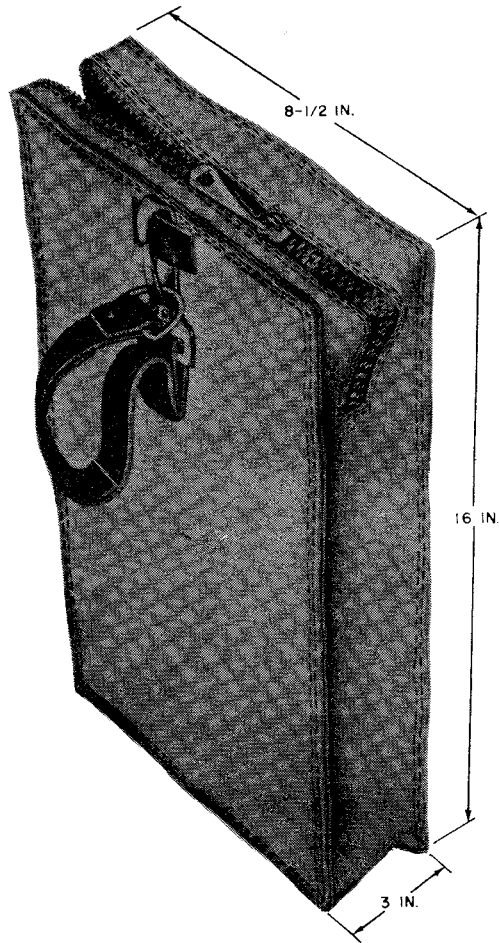
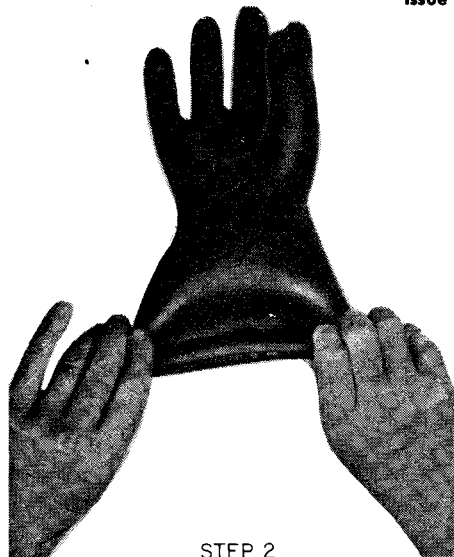


Figure 4 - B Glove Bag

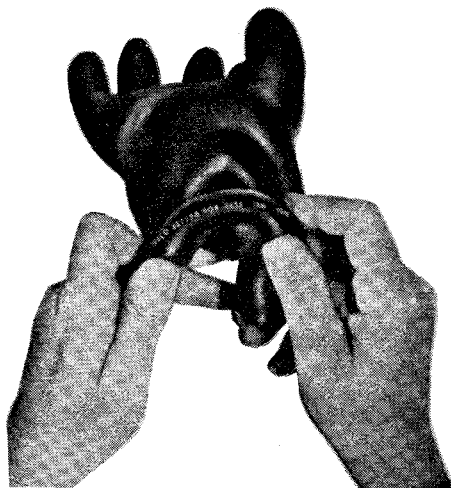
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STEP 1



STEP 2



STEP 3



STEP 4

Fig. 5—Air Test Operations 1-2-3-4

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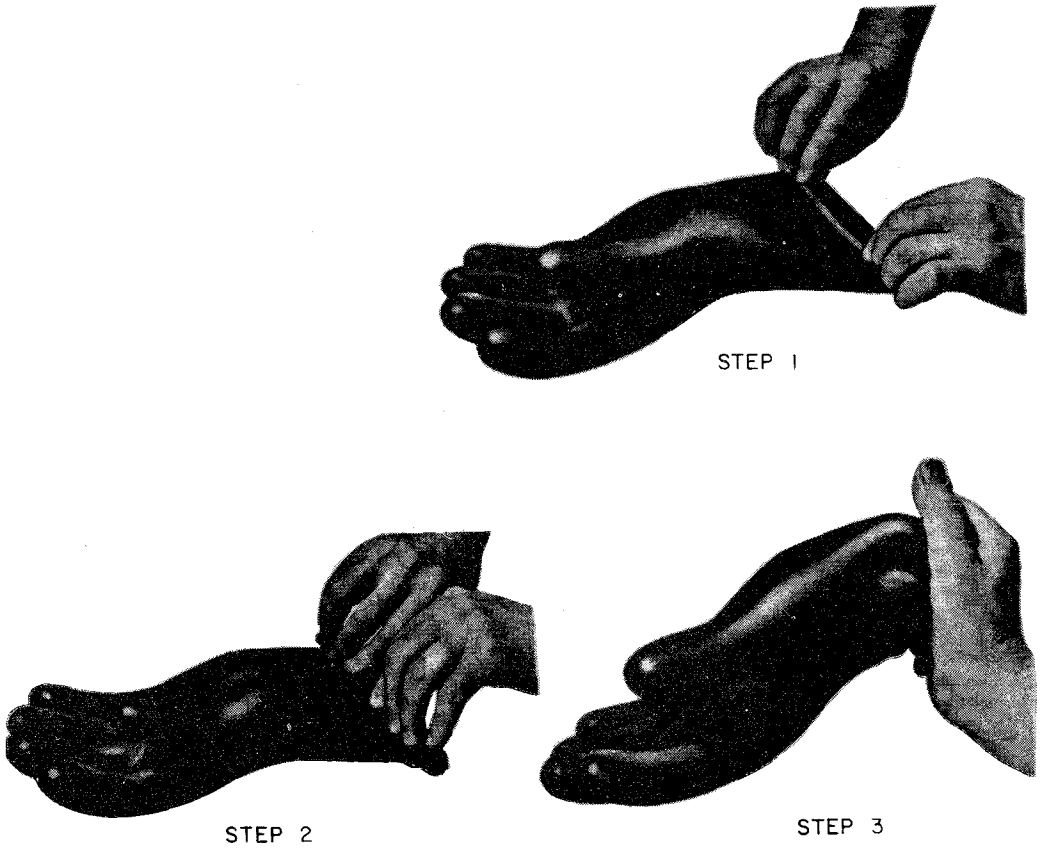


Figure 6 - Alternate Air Test

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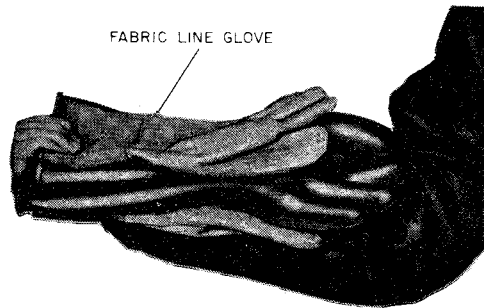


Figure 7 - Stacking Gloves



Figure 8 - Placing in Storage Bag

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TABLE A - Compatible Sizes for Insulating Glove - Leather Protector - Fabric Liner

INSULATING GLOVE		LEATHER PROTECTOR (NOTE)	FABRIC LINER
TYPE	SIZE	D-TYPE	
E or F	8	8	6
E or F	9-1/2	9-1/2	7
E or F	10	10	7
E or F	11	11	8
E or F	12	12	8

Note: Does not apply to E insulating gloves and F insulating gloves when used in central office.

TABLE B - E Insulating Gloves

MARKING	TYPE OF MARKING	LOCATION
Manufacturer's Name ANSI J6.6/ASTM D120 Type I, Class I (Size)	White Color Label	Backhand Side Near Rolled Edge
Bell System "E" (Date of Manufacture)	Hot Dye Stamp or Indelible Ink	Backhand Side Near Rolled Edge
(Co Name) Tested "Return for Test" (Month-Year)	Indelible Ink	Backhand Side Above White Label on Gauntlet Surface

TABLE C - F Insulating Gloves

MARKING	TYPE OF MARKING	LOCATION
Manufacturer's Name ANSI J6.6/ASTM D120 Type I, Class II (Size)	Yellow Color Label	Backhand Side Near Rolled Edge
Bell System "F" (Date of Manufacture)	Hot Dye Stamp or Indelible Ink	Backhand Side Near Rolled Edge
(Co Name) Tested "Return for Test" (Month-Year)	Indelible Ink	Backhand Side Above Yellow Label on Gauntlet Surface