REPAIR OF INSULATION

WIRING AND CABLING

1. GENERAL

1.01 It is sometimes necessary to recondition the wiring and repair frayed or missing insulation. This section covers the methods of making such repairs and should be followed as far as practicable in the repair of wiring not specifically mentioned herein.

1.02 This section is reissued to add a substitute for polyethylene pressure-sensitive tape and to revise the information on the repair of polyvinyl chloride insulation.

1.03 The following substitutions may be made for materials specified herein:

(a) Where cellulose acetate lacquer is not available or its application is not desirable locally for repairing frayed or missing insulation, orange shellac varnish may be used.

(b) Varnished impregnated sleeving per KS-7851 or nonrigid PVC tubing per ASTM designated D-922.

(c) Gray friction tape or gray plastic adhesive tape per KS-14090. The plastic tape does not require shellacing.

Note: Plastic tape or nonrigid PVC tubing should not be used in locations where a hot soldering copper or other heat producing device might come in contact with the tape or tubing.

(d) Polyethylene pressure-sensitive tape, (RM-593896 red, RM-593897 blue) or Minnesota Mining and Manufacturing Company's No. 5 polyester tape (RM-596270 clear backing).

2. TOOLS AND MATERIALS

Code or Spec No.

Tools	Description
-	6-1/2-in. P-Long-nose Pliers
-	5-in. Diagonal Pliers
KS-6320	Orange Stick
	or
R-1102	Fiber Spudger

Materials	Description
-	Cellulose Acetate Lacquer (RM-644743)
	or
-	Orange Shellac Varnish (RM-646726)
KS-7851	Varnish Impregnated Sleeving (Size as Required)
	or
-	Nonrigid PVC Tubing per ASTM Designated D-922
-	3/4-in. Gray Friction Tape (RM-591127)
	or
KS-14090	Gray Plastic Adhesive Tape
-	Polyethylene Pressure-sensitive Tape (RM-593896 Red, RM-593897 Blue)
	or
-	Minnesota Mining and Manufacturing Company's No. 5 Polyester Tape (RM-596270 Clear Backing)
R-3155	Wire Insulation Coating

3. METHODS

3.01 Damaged braided insulation on exposed skinners may be repaired with one wrapping of friction tape applied separately over the damaged insulation on each lead with a half lap. Apply a light coat of orange shellac varnish to the tape.

3.02 Damaged served textile insulation on exposed skinners may be repaired by wrapping the damaged portion with insulation of the same type and color and applying a light coating of cellulose acetate lacquer to the added insulation.

3.03 Damaged polyvinyl chloride insulation on exposed skinners may be repaired by coating the damaged portion with wire insulation coating (R-3155).

3.04 Damaged type "AR" stranded multiple bank wiring, where the damage is limited only to the insulation and no wire strands have been injured, may be repaired by wrapping the exposed portion with sufficient half lap turns of polyethylene pressure-sensitive tape (RM-593896 red, or RM-593897 blue), to adequately insulate the wire. Where the wire at the clinch is

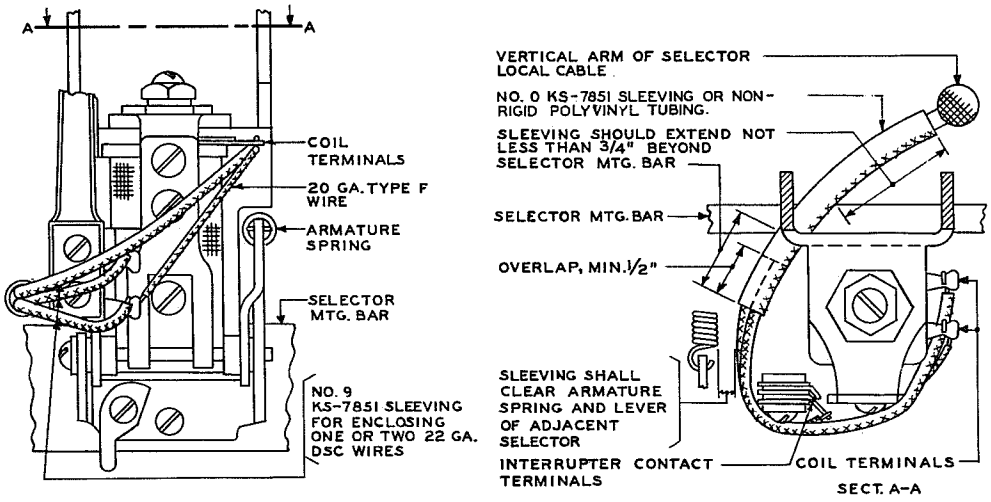

Fig. 1 - Protection of DSC Leads to Coil and Interrupter Spring Contacts of 200- and 206-type Selectors

damaged but not the terminal, the terminal lug shall be tinned and both ends of the wire terminating at that clinch shall be wrapped once around the lug and then soldered. This is necessary since in all instances where heat is applied to the terminal, the clinch connection shall no longer be relied upon to maintain a connection.

Reconditioning and Repair of Loose-wrapped Insulation on Existing Equipment

3.05 On some of the older equipments wired with loose-wrapped waxed wire, it is sometimes necessary to recondition the wiring and repair frayed or missing insulation. This is particularly desirable in those places where high potential and vibration due to moving parts are encountered, as for example, wiring to the front of 200- or 206-type selectors in panel offices prior to the adoption of type "F" wire for this purpose. Where reconditioning and repair of wiring is necessary, the following procedure should be followed:

(a) On wiring to relays, sequence switches or any wiring where similar skinner dress is used and the skinner insulation is badly dried out and frayed or otherwise damaged, the skinners should be sleeved with varnish impregnated sleeving per KS-7851. The skinners should be sleeved individually using No. 9 sleeving, except where more than one connects to the same terminal in which case these skinners should be enclosed in one sleeve, using No. 9 or larger sleeving as required. Slightly frayed insulation should be given an application of cellulose acetate lacquer and twisted into place. All skinners, including those which were sleeved, should be redressed to simulate the original dress as nearly as practicable.

(b) On wiring to 200- and 206-type selectors or similar cases where the wiring lies in contact with metalwork and the insulation is badly frayed or the protective tape has become dried out to the extent that it does not adequately protect the wiring, the leads should be sleeved with varnish impregnated sleeving per KS-7851. The leads should be sleeved individually using No. 9 sleeving, except where more than one connects to the same terminal in which case these leads should be enclosed in one sleeve, using No. 9 or larger sleeving as required. Where the wiring is sewed, stitches should be removed as required to permit redressing the sleeved leads as necessary to present the best maintenance conditions. Larger sleeving should be used where necessary to enclose a form for protection against metalwork. Fig. 1 shows the recommended method of sleeving wiring to 200- and 206-type selectors in which case the No. 9 sleeving should be used to enclose one or two leads to a particular terminal and No. 0 to enclose the local cable. Where the insulation is only slightly frayed and the wiring, including the protective tape, is otherwise in good condition, cellulose acetate lacquer should be used to recondition the wiring.