

**NUMBER GROUP FRAME
NONWIRE-SPRING-RELAY TYPE
CROSS-CONNECTION METHODS
NO. 5 CROSSBAR OFFICES**

1. GENERAL

1.01 This section covers the placing and removal of cross-connections on the nonwire-spring-relay type number group frame SD-25556-01.

1.02 This section is being reissued to include the use of 22 gauge, type DP1 wire which replaces 22 gauge, type K wire in the non-wire-spring relay number group frame SD-25556-01. This reissue does not affect Equipment Test Lists.

1.03 Additional general information regarding placement of jumpers is covered in the appropriate sections of division 069 of the plant series.

2. TOOLS AND MATERIALS

2.01 Soldering tools and materials as required.

2.02 ♦KS-21257 pliers (for type DP1 wire).◀

2.03 R-2291 short nose pliers.

2.04 5-inch diagonal V notch pliers.

2.05 The following colors of wire as required: 22-gauge, ♦type DP1 wire◀ for 242-type terminal strips and 24-gauge, type BU wire for 251-type terminal strips.

COLOR	22 GAUGE	24 GAUGE
	→TYPE DP1←	TYPE BU
White	→841 506 330	P-46A565
Red	841 506 348	P-46A566
Green	841 506 355	P-46A562
Brown	841 506 363	P-46A563
Black	841 506 371	P-46A567←

2.06 P-314952 22-gauge bare strap wire.

2.07 P-26991 22-gauge, type J, black-sleeved strap wire.

2.08 24-gauge, type BG wire for use on rear of frames with 251-type terminal strips.

2.09 Table-type wagon and wire spool rack per ED-90595-01.

2.10 635A wire wrapping tool.

3. COLOR AND TYPE OF WIRE

3.01 When cross-connecting the G, F, and L terminals on the cross-connection field, use the wire of the proper color indicated in Table A.

3.02 Use the same color and type wire for cross-connections from the VHG and RF terminals to the miscellaneous terminal strips as that used for the associated wires from the G and F terminals to the miscellaneous terminal strips.

NOTICE

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TABLE A

HUNDREDS NO ON G, F AND L CROSS CONNECTION FIELDS	ROW FROM BOTTOM UP	COLOR
000 and 500	1	White
100 and 600	2	Green
200 and 700	3	Black
300 and 800	4	Red
400 and 900	5	Brown

3.03 Use 22-gauge bare or 22-gauge, type J, black-sleeved strap wire for straps and cross-connections on the 242-type miscellaneous terminal strips and 24-gauge, type BU wire on 251-type terminal strips.

3.04 Use green, type DP1 wire for cross-connections between the translator resistance terminal strips and the VHG, RF, and LL field terminal strips on the rear of frames with 242-type terminal strips and 24-gauge, type BG wire on frames with 251-type terminal strips.

3.05 Use green wire for cross-connections on the block select and tens block busy test units.

4. METHOD OF RUNNING CROSS-CONNECTIONS

4.01 If possible, connect only one wire to any one terminal. Where terminals in more than one horizontal row are available, connect to the terminal which gives the shortest vertical run.

4.02 When running cross-connections, use the KS-21257 pliers and remove approximately 1-1/2 inches of insulation. Crush insulation by firmly closing pliers, exercising care to avoid flattening of wire due to excessive pressure. Release pressure slightly and push pliers toward end of wire, thereby removing insulation. When using 22 gauge, type DP1 wire use the stripping notch to remove the insulation.

Caution: To avoid injury, be careful that the motion of pliers is in a downward direction away from the body and equipment.

4.03 The following description assumes a directory number located on the upper G, F, and L terminal strips. Determine the color of the wire to be used from Table A.

4.04 Clean any solder from the terminal.

4.05 Bring the insulation up the left side of the directory number terminal to the top notch; pass the bare wire through the top notch, down the right side, through the bottom notch, up the left side, and through the top notch, thereby completing one wrap around the terminal. Continue wrapping for another complete turn, placing each turn in the notch so that each turn is parallel on the terminal, maintaining a steady tension on the wire while wrapping around the terminal in order to ensure a good contact between the edge of the terminal and the wire. After coming through the top notch and down on the completion of the second wrap, break the wire off by a slight up and down movement (wiggle).

Caution: Do not attempt to make the wrapping tighter by squeezing the wire against the side of the terminal with pliers as this tends to release the grip of the wire in the notch.

4.06 Place the wire through the notches of the fanning strips and down along the left side of the assigned common field terminal. Measure the skinning point at bottom notch of the terminal to be connected to, using finger as a guide. Crush and remove 1-1/2 inches of insulation, using the KS-21257 pliers.

4.07 Draw the wire along the left side of the lower terminal (without slack but not taut) under and through the bottom notch, up the right side and through the top notch, down the left side and through the bottom notch. Continue wrapping for one and one-half more turns, placing each turn in the notch so that each turn is parallel on the terminal and maintaining a steady tension on the wire while wrapping around the terminal in order to ensure a good contact between the edge of the terminal and the wire. After coming through the top notch and down, break off the wire by a slight up and down movement (wiggle). Be careful not to exert excessive pressure which might cause bending or breakage of terminal.

Note: If it is necessary to place more than one wire on a common field terminal, make connections and solder the connection. In this case, a single wrap of wire on the terminal for each connection will be sufficient.

4.08 When connections are started at the lower G, F, or L terminal strips, after placing the lower connection, measure the skinning point at the top notch of the terminal to be connected to, using finger as a guide. Be careful that the motion of pliers while removing the insulation is in a downward direction.

4.09 *Cross-Connections From Miscellaneous Terminal Strips to F, RF, G, or VHG Terminal Strips:* Determine the proper color wire as covered in 3.02. Run the cross-connection from the miscellaneous terminal strip down through the fanning rings on the left side of the frame and through the fanning strip slot associated with the assigned G, VHG, F, or RF terminal. Connections to 242-type terminal strips should be soldered. For 251-type miscellaneous terminal strips, attach the wire using the 635A wire wrapping tool. Measure the skinning point at the bottom notch of the assigned G, VHG, F, or RF punching, using finger as a guide.

4.10 *Removal of Cross-Connections:* When removing connections between the directory number terminal strips and the common fields, trace the cross-connection from the directory

number terminal to the most accessible point between the directory number terminal and the common field terminal and cut the wire, using diagonal pliers. Remove the cut wire by holding the free ends and unwrapping the wires from the terminals, taking care not to bend terminals. If the wire is located on the miscellaneous terminal strips, take care not to damage relays located directly above. Remove solder from terminals.

5. STRAPPING OF TERMINALS

5.01 Connections on the miscellaneous terminal strip and on the rear of the VHG, RF, and LL field terminal strips should be soldered except where equipped with 251- or similar type terminal strips.

5.02 On miscellaneous terminal strips at the top of the frame, terminals in rows which are perpendicular to the fanning strip shall be strapped with bare strap wire where adjacent and with black sleeved strap wire where nonadjacent.

5.03 Where terminals to be connected together are not all in a row perpendicular to the fanning strip, the sleeved strap wire shall be run through the fanning strip.

5.04 Strapping of adjacent terminals on the rear of translator terminal strips shall be made with bare strap wire and between nonadjacent terminals with black-sleeved strap wire.