

REPLACING PAGE ADDENDUM

Filing Instructions:

1. REMOVE FROM THE SECTION THE PAGES NUMBERED THE SAME AS THOSE ATTACHED TO THIS PINK SHEET.
2. INSERT THE ATTACHED PAGES INTO THE SECTION IN THEIR PLACE.
3. PLACE THIS PINK SHEET AHEAD OF PAGE 1 OF THE SECTION.

**BLOCK RELAY FRAME AND LINE DISTRIBUTING FRAME
CROSS-CONNECTIONS
NO. 1 CROSSBAR OFFICES**

1. GENERAL

1.001 This addendum supplements Section 216-719-301, Issue 4. The attached pages must be inserted in the section in accordance with the filing instructions above.

1.002 This addendum is issued to include cross-connecting information for offices provided with direct-in-dialing (DID) trunks to a 101 ESS PBX.

2. DESCRIPTION

The following changes apply to Part 2 of the section:

- (a) Paragraphs 2.19 and 2.26 are revised to include information on 101 ESS trunks.

3. CONNECTIONS

The following changes apply to Part 3 of the section:

- (a) Paragraph 3.18.1 added to describe method of placing cross-connections required for DID trunks to 101 ESS PBX.
- (b) Paragraph 3.19 is revised to include NF cross-connections required for DID trunks to 101 ESS PBX.
- (c) Fig. 2A and 6 are revised to include ESSHG cross-connection field.

ATTACHED:

Page 3 dated October 1970, revised
Page 4 dated October 1970, revised
Page 7 dated October 1970, reissued
Page 8 dated October 1970, revised
Page 8.1 dated October 1970, added
Page 13 dated October 1970, reissued
Page 14 dated October 1970, revised
Page 17 dated October 1970, revised
Page 18 dated October 1970, reissued



2.14 OFT Punchings: These punchings appear on the upper and lower NF terminal strip at the right-hand side. On the upper terminal strip, the punchings appear in the lower row; in the lower terminal strip the punchings appear in the upper row. The OFT punchings are used in connection with terminals arranged for testing incoming overflow tone and for reorder signal.

2.15 PT, PN, TN, PTN, PN1, TN1, PTN1 Punchings: These punchings which are used with the physical-theoretical office arrangement appear on later type frames and are located on the NF terminal strip at the extreme right-hand side. The PT punchings are located in the lower row. The other punchings appear in the vertical rows. The numbers at the left indicate the number group. The PT punchings of each group of punchings are strapped, as for example those restricted to physical numbers. In this case, the first PT punching is strapped to the PN punching and the last PT punching is strapped to the PN1 punching. Likewise for punchings restricted to theoretical numbers, the first and last PT punchings are strapped to TN and TN1 punchings, respectively. For those restricted to nondiscriminating numbers, the first and last PT punchings are strapped to PTN and PTN1 punchings, respectively.

2.16 HB and CN Punchings: The HB punchings appear in a terminal block as shown in Fig. 4. The HB0-HB24 (hundred block leads) terminate at the multicontact relay terminal strip on a number group frame and are cross-connected to the terminal block at the top of the block relay frame. The terminal block has provision for terminating 25 HB leads each from a maximum of 4 number groups per block relay frame. Where the CN punchings are provided on the block relay frame, they appear in the upper row of the same terminal block as the HB punchings. The CN punchings are wired when the 100 block serves coin lines.

2.17 TB and SH Punchings: The TB and SH punchings appear on terminal blocks as shown in Fig. 5. The terminal blocks have six rows of punchings. The first four rows are designated SHA, SH, TBA, and TB. The last row is designated XSH. The hundred block relay served is designated at the left as HB0, HB1, etc. The TB leads 0 through 4 terminate at the multicontact relay terminal strip on the number group frame and are cross-connected to the TB 0 through 4

punchings. These punchings are multiplied to other HB relays in the same number group. The associated TBA punchings are electrically the same point as the TB punchings and are used for completing the loop wiring from the first HB relay to the last HB relay. The windings of the TB0-TB4 relays are wired to the SHA terminals. The associated SH terminals extend to the contacts of the (HB) relay. On the earlier type frames, the TB and SH punchings appear on terminal blocks designated TB and SH, respectively, and are located at the top of the block relay frame.

2.18 NFA, HFA and RFA Punchings: The NFA, HFA and RFA punchings are located on the right side of the upper and lower NF terminal strips. They are used when it is desired to allow a customer to control the number of incoming PBX trunks by operating a key at the customers premises. With this arrangement, the NF punching of the intermediate trunk is wired to NFA punching, HFA punching is wired to HF punching and RFA punching is wired to RF punching.

2.19 LLPHG, ESSHG Punchings: The LLPHG and ESSHG punchings are located adjacent to the HG punchings, as shown in Fig. 2a and 6. They are used, if provided, to inform the marker of the location of the LLP line circuit or 101 ESS trunk in the line choice. The LLPHG and ESSHG punchings are isolated from the HG punchings mentioned in 2.10 by a diode arrangement, but they have the same numerical significance. For example, cross-connection of an NC terminal to LLPHG A7 serves to inform the marker that the LLP line circuit is located in horizontal group 7 of line link frame A of the line choice.

Line Distributing Frame

2.20 The line distributing frame (LDF) provides a means of cross-connecting sleeve and message register leads between subscriber line terminal strips which are cabled to the line link frames and subscriber number terminal strips to the block relay frame and message register rack. Groups of 800 circuits terminate on each four verticals of line distributing frame. The punchings on these strips are numbered from the bottom up. The upper portion of the frame has eight rows of horizontal terminal strips which, when all lines are individual, are wired to 800 subscriber lines. The numbering of these strips corresponds with the numbering of the line link columns. The punchings

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are numbered to correspond with the numbering of the hold magnet in the line link column. Terminal strips associated with extra numbered circuits are located at the end of the frame.

2.21 In offices equipped for AMA, message registers are omitted and the LDF is limited to single-wire cross-connections between line sleeves and number sleeves. Likewise, in offices arranged for conversion to AMA, the message register jumpers are placed on a separate frame so as to facilitate their removal at the time of conversion and leave only the sleeve jumpers on the LDF. In these cases, the line and number sleeves are terminated two or more circuits deep on the terminal strips.

2.22 In AMA offices and in offices arranged for conversion to AMA, the LDF may be located at the MDF (usually limited to the office or pair of offices having block relay frames on the same floor with the MDF). In order that the LDF equipment will occupy the minimum number of MDF verticals, the number sleeves are terminated five circuits deep and the line sleeves three or five circuits deep on the vertical and horizontal terminal strips.

2.23 *Message Register Terminal Strip:* Where separate terminal strips are provided for message registers, they are located on the horizontal portions of the frame beyond the subscriber line terminal strips.

2.24 *Extra Number Terminal Strips:* These strips are located at the end of the line distributing frame.

2.25 *Miscellaneous Circuit Connections:* A number of miscellaneous circuits are wired to ALS and ANS punchings. These terminal strips are located in the horizontal portion of the frame beyond the individual subscriber line punchings. The ALS and ANS punchings are provided in pairs except for 10-party punchings. The circuits are numbered from 0 up except for 8- or 10-party punchings in which case the ANS punchings are numbered 1 through 10 but on earlier jobs were numbered 0 through 9, and are located on three rows. The punching in the rear of the third row is the ALS punching.

2.26 *LLP or ♦ESS♦ Line Circuits:* When LLP or ♦ESS♦ line circuits are provided, the LS1, NS1, and BLS punchings for ♦LLP lines and

the ANS, ALS punchings for ESS lines♦ are located on the horizontal portion of the line distributing frame.

3. CROSS-CONNECTIONS

General

3.01 The service order gives the data required where lines are to be added or where changes are to be made. Table A summarizes the assignment information given on a service order for an individual line. The information in Table A is limited to the central office information and in addition to the cable pair. The assignments given in Table A comprise:

- (1) The cable pair
- (2) The telephone number
- (3) The designation of the line choice (LCH), frame (Fr), column (Col), switch (Sw), and vertical (V) as for example 7A-60-93 in which the 7 indicates the line choice, the A indicates the frame within the line choice, the 60 indicates the column, the 9 indicates the switch (horizontal group), and the 3 indicates the vertical.

3.02 References are made below to various terminal strips, the location and description of which are covered in Part 2. Where message rate lines are provided, the message registers may be cabled directly to the subscriber number terminal strip or to separate terminal strips and cross-connected to the subscriber line terminal strip.

3.03 In running cross-connections at the block relay frame, run only one wire to any one punching. Where there are 10 or less line choices and the punchings are multiplied to take care of this condition, always run the shortest vertical lead. However, if no punching is available in a vertical row, the lead should be run criss-cross to the nearest available punching in an adjacent or nearby row in the same number group. The tips of the four adjacent pins are painted red and a red (black on earlier installations) line is stamped on the fanning strips at the break between number groups. Do not run leads criss-cross over this line.

3.04 Reference is made in the following paragraphs to subscriber lines. The cross-connection information is the same for trunks that terminate on the line link frame.

following sentences. Under this condition, it is assumed that the following number in the 20 block is available. To add number 2246 to the PBX as outlined in 3.10, where the last number was 2245, remove the lead from RF9 and run this lead to HF9. Then make the necessary cross-connections to add directory number 2246 in the same manner as for adding an individual line covered in 3.05. If 2247 is also to be added, then the NF2246 is run to the assigned HF punching and NF 2247 to the RF punching. Hunting cannot be done beyond 2299 in this type of connection.

3.15 Allotted Terminal Hunting Lines: When a PBX is allotted between two number groups, the connections are made as described in 3.10. The last NF punching in each number group is cross-connected to the RF punching determined by the line choice. Marker cross-connections should also be made.

3.16 Adding Lines When PBX Numbers Require Jump Hunting: Where it is required to add more lines to a PBX and telephone numbers are not available in consecutive series due to the next number already being assigned, or where a group is to be established and there are not enough consecutive numbers available in the group, jump hunting is employed to jump the progress to another relay. For example, assume the telephone numbers of a PBX extend from 2220 through 2232 and number 2233 is not available and it is desired to add four lines. In this case, the first and intermediate NF punchings (2220 through 2231) are cross-connected to the HF punchings of the line choices as described in 3.10. Disconnect the lead which extends from the NF 2232 to the RF punching and connect this lead to the assigned JF punching of the same number group. This indicates which of the 20 blocks in the hundred block designated for jump hunting is to contain the added numbers. Where the jump hunting hundred block is in the extra numbered series, these numbers are located at the end of the line of the block relay frames. The NC punchings 2220 through 2231 are connected to HG punchings as described in 3.05 for direct lines. Disconnect the lead which extends from NC2232 to the HG punching and connect this lead to the specified JC punching. The JC punching indicates which of the terminals in the 20 block designated by the JF lead is to be the first of the added numbers. Assuming therefore that the added extra numbers are 0322, 0323, 0324, 0325, and 0326, the lead associated with NF 2232 would

be connected to JF1 of the same number group. The NC punching 2232 would be connected to punching JC2. The NC punchings for the added lines would be cross-connected to the HG punchings as described in 3.05 for individual line connections. The NF punchings for the first 4 added lines would be cross-connected to the HF punchings as described in 3.14 and the last NF punching (0326) cross-connected to the RF punching of the line choice. At the line distributing frame, it would be necessary to make the cross-connections as described in 3.05 for the individual subscriber lines. The sleeve of the last line of the first terminal hunting group, (2232) should be left disconnected at the line distributing frame since the last line of the original group (2232) can no longer be used for a PBX trunk. The hundred block assigned for jump hunting in any group is reached over the HB 24 lead on the marker. Where it is required to jump hunt to a hundred block in the regular numbered series, cross-connect the HB 24 lead at the HB terminal block to the punching to which the required HB relay is wired. If this is done, all cross-connections for the NF and NC punchings associated with the added numbers should be made at the block relay frame in which the added hundred block relay appears.

Note: If the extra numbered lines are not provided with message registers, cross-connect the S and M punchings of the extra numbered lines at the horizontal line distributing frame to the vertical S and M punchings of the assigned nonworking lines.

3.17 PBX Lines to Customers Equipped for LLP-DID: The NF cross-connections are placed as described for PBX lines in 3.10. The NC cross-connections are cross-connected to the LLPHG punchings in accordance with the service order assignment. Assuming an assignment such as 5C-44-87, the NF punching of the line should cross-connect to HF5 (for a first or intermediate line) and the NC punching should cross-connect to LLPHG8C. At the line distributing frame, the S terminal associated with the PBX line would be cross-connected to the NS1 punching of the line circuit, DID, and the corresponding LS1 punching of the line circuit, DID, would be cross-connected to the S punching at column 44, switch 8, vertical 7. If outgoing service is to be provided, a cross-connection is placed from the M punching of the PBX line to the M punching at column 44, switch 8, vertical 7.



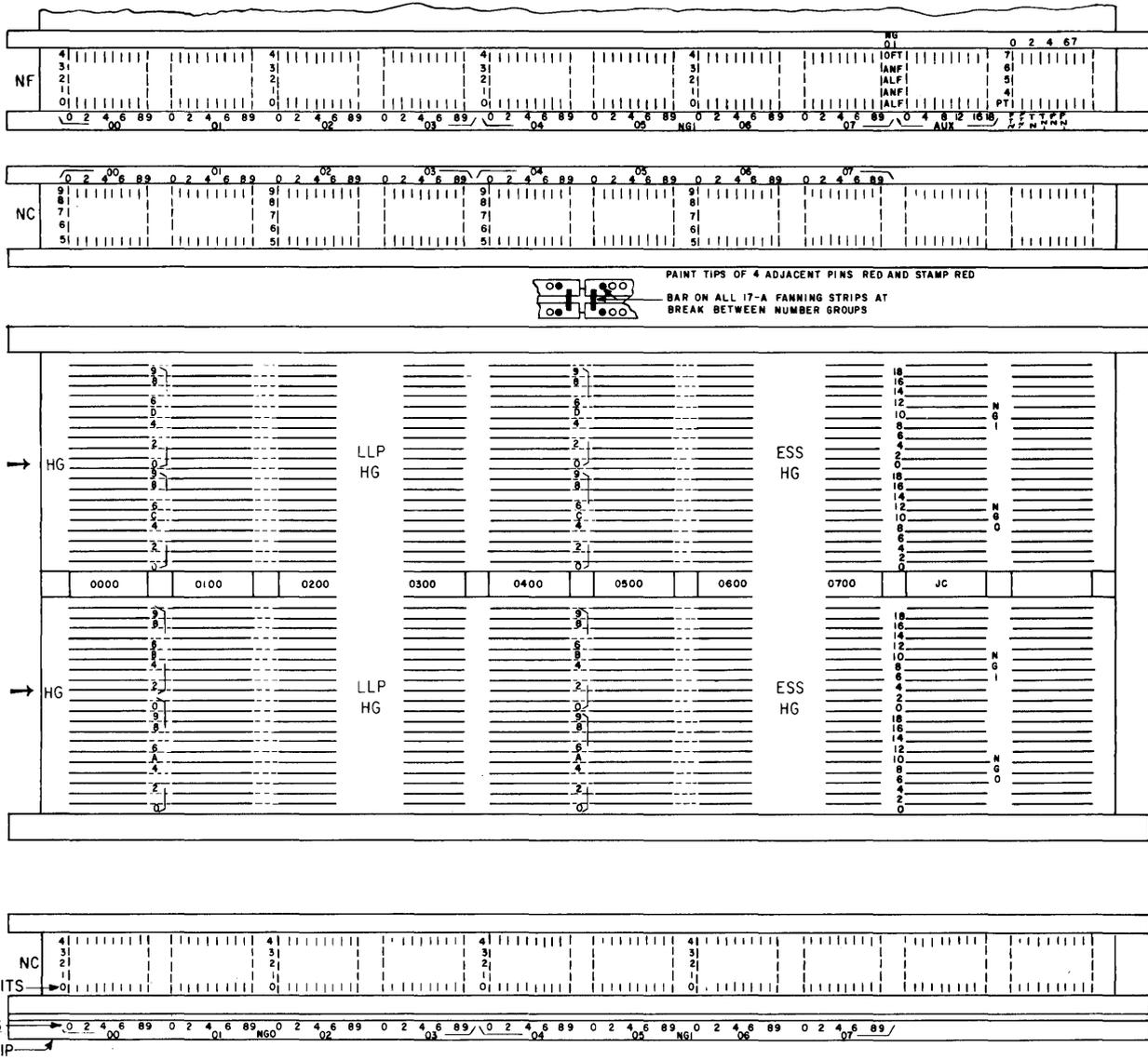


Fig. 2a—Sample Cross-Connection Fields of Block Relay Frame

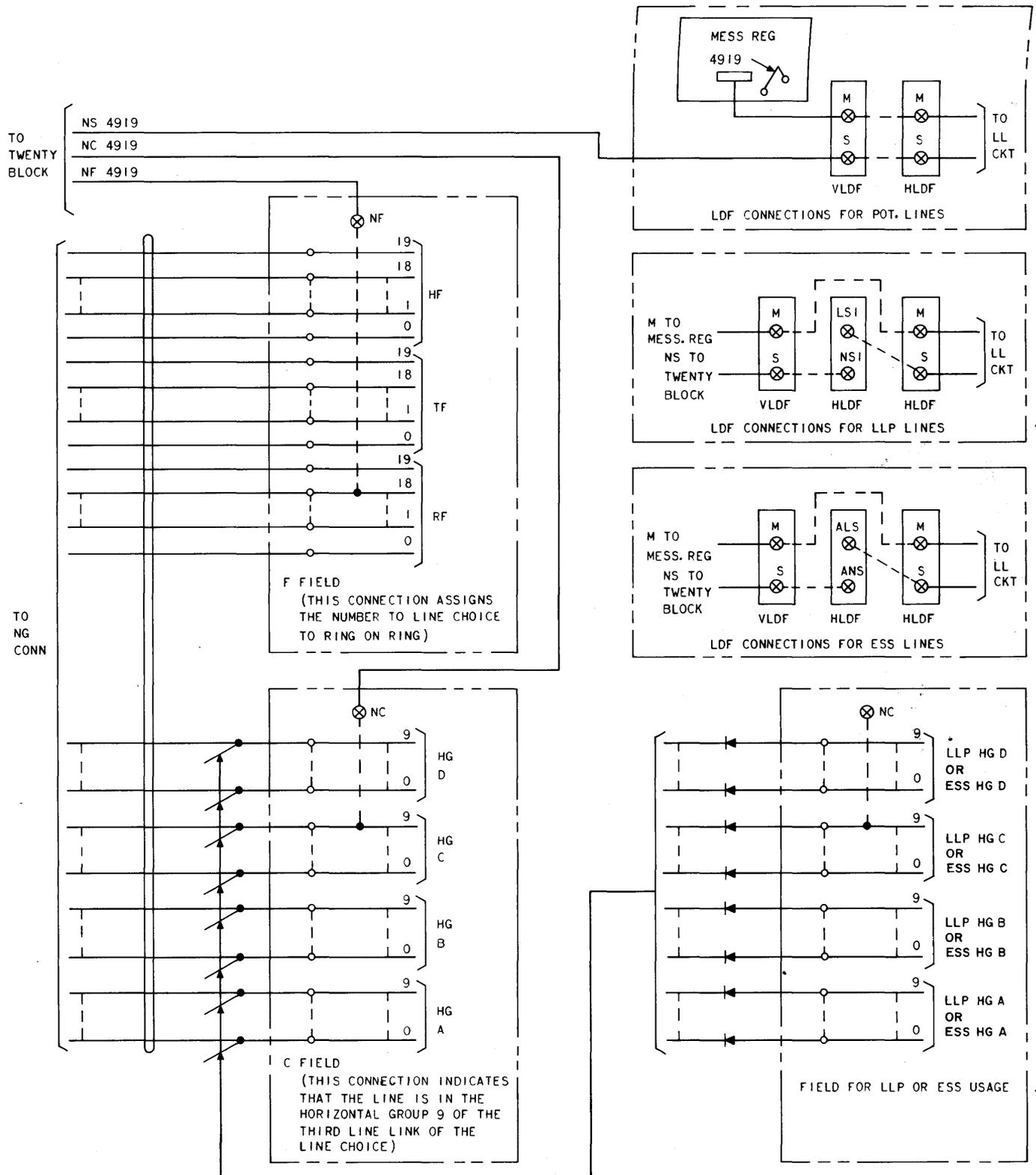


Fig. 6—Illustrating Customers Line Cross-Connections

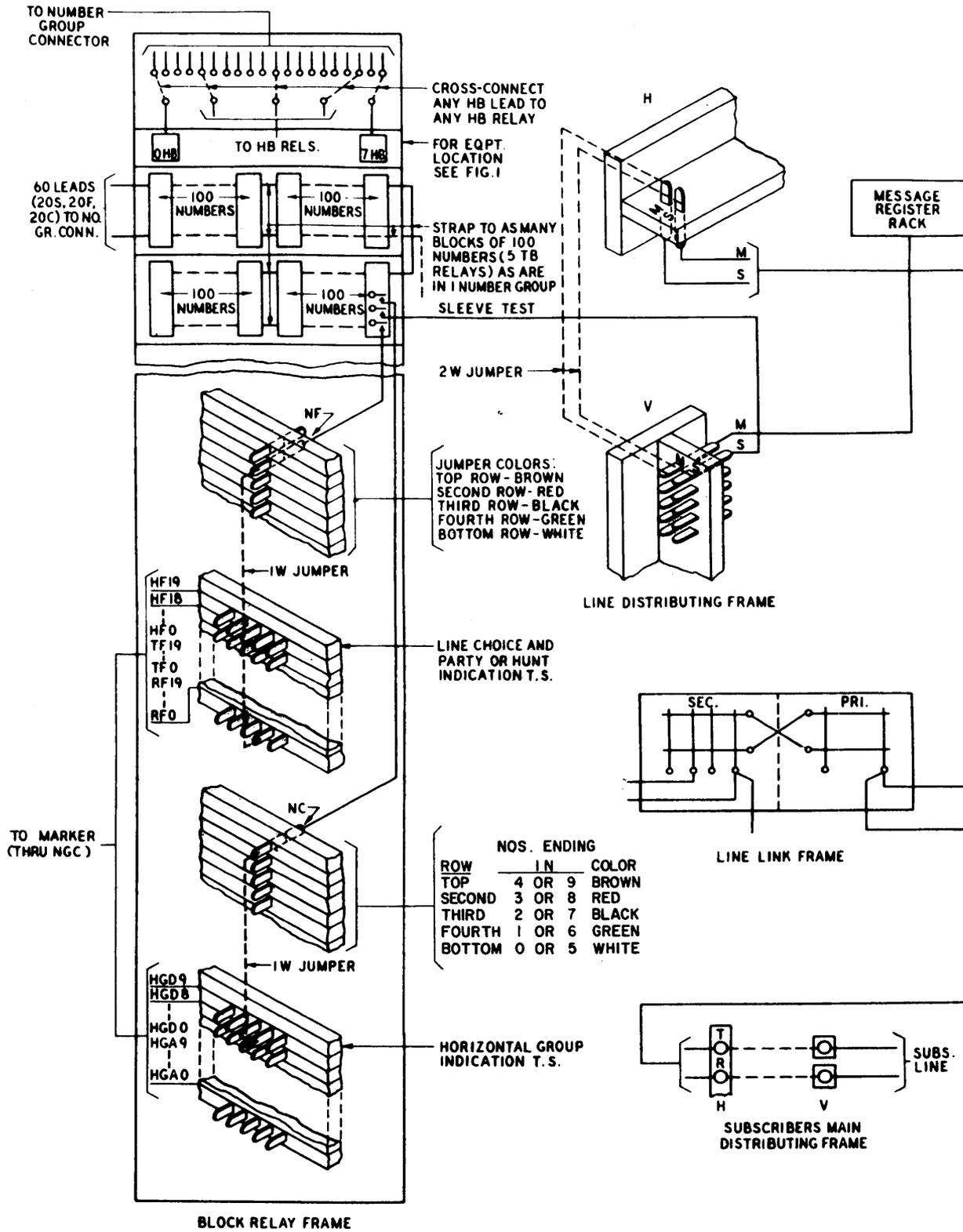


Fig. 7—Schematic of Typical Connection Between Block Relay Frame and Main Distributing Frame