

DROP AND BLOCK WIRING AT AERIAL CABLE TERMINALS

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1. GENERAL

1.01 This section covers drop and block wire runs at aerial cable terminals. Its purpose is to provide a guide for the neat and orderly placement of wire rings for the support of drop and block wire.

PROPRIETARY

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- 1.02 This section is reissued to add procedures for the proper method of cleaning binding posts and the use of gel-filled or water proof caps, if applicable.
- 1.03 The B drive tie (Fig. 1) is intended for holding cable or wire on wood surfaces. The B drive tie is a 1-piece black-plastic tie with a number four galvanized flathead nail protruding through a tab at one end. Installation is by driving the nail into a wood surface or a plastic anchor. The B drive tie will hold wire or cable up to 1-1/8 inches in diameter.

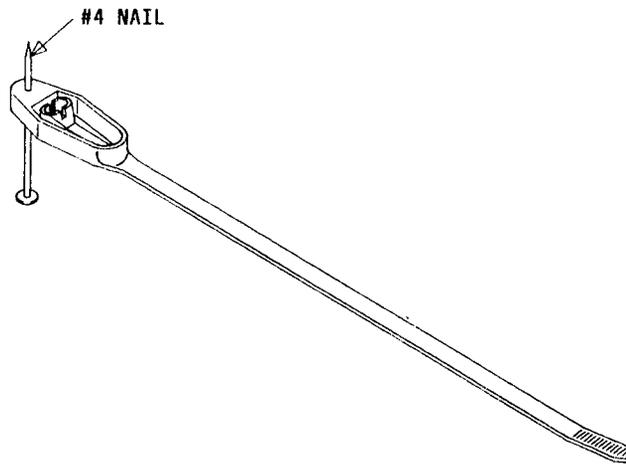


Fig. 1 - B Drive Tie

- 1.04 The Drive Ring (Fig. 2) is intended for holding drop wire on wood or concrete surfaces. The drive ring is made of galvanized steel and it consists of a horse shoe section equipped with a nail. Installation is made by driving the nail portion into a wood surface or a D drive anchor.

DANGER: Due to the possibility of injury, DO NOT PLACE drive rings in the area from ground level to a height of six (6) feet. use either bridle rings or B drive ties to complete the wire runs on pole or building applications.

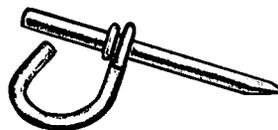


Fig. 2 - Drive Ring

- 1.05 Whenever the B drive tie is mentioned, it is also intended that the drive ring may also be used, except where it presents a safety hazard as outlined in paragraph 1.04.
- 1.06 When local requirements indicate the necessity for using guard arms, refer to Section 462-300-200.
- 1.07 Information covering the various cable terminals referred to in this practice may be found in the following sections as needed.

SECTION	TITLE
462-030-100	Drop, Block, and Cross-Connect Wiring-Insulated Wire
462-300-200	Drop and Block Wiring Pole, Strand, and Tree Attachments Climbing Space
462-400-211	Drop and Block Wiring, Pole-to-Building and Pole-to-Pole Runs
620-216-013	Clearances on Jointly Used Poles.

- 1.08 At each visit to the terminal location, perform the following:
- Fingertighten the nuts on all unused binding posts to keep all contact areas as clean as possible.
  - Brush the faceplate with a water tool brush to remove any dirt that may have accumulated.
- DANGER:** When cutting the ends of wire terminated on binding posts, wear eye protection and place the free hand over the binding post before cutting the wires.
- Trim frayed ends of wires which might cause leakage to adjacent wires or binding posts.
- 1.09 No more than two conductors shall be bridged on each binding post. Where additional bridging is necessary, wire terminals should be used.

## 2. SAFETY

- 2.01 Safety, quality, and quantity (in that order) are three very important factors to consider in the performance of any telephone job.

- 2.02 All employees engaged in working on poles should be familiar with the following practices:

SECTION	TITLE
081-705-102	188A Test Set (Stop Lite) - Description and Use
620-131-010	Precautions To Be Taken Before Climbing Poles or Working From Strand- or Pole- Supported Equipment
629-720-200	Buried Service Wire Terminations.

3. STRAND-MOUNTED TERMINALS

- 3.01 Run drop wires to the terminal from the adjacent pole (Fig. 2), except where they distribute from a cable extension arm or from a span clamp. A drop wire from a span clamp should be run directly from the span clamp to the terminal when the span clamp is adjacent to the terminal.
- 3.02 Route the drop or block wire through the three hangers below the terminal, around the hanger at the far end, and below the terminal to the proper wire entrance holes of the assigned binding posts.
- 3.03 Cut wire to the proper length for terminating.
- 3.04 Remove the required amount of insulation from the wire to terminate on the binding post.
- 3.05 Using long-nose pliers or other suitable tool, break through the wire entrance hole adjacent to or below the proper pair of binding posts.
- 3.06 Insert the wire through the wire entrance hole and terminate it on the binding post so the end of the insulation is about 1/8 inch from the washers.

49-TYPE TERMINAL

- 3.07 Refer to Fig. 3, 4, and 5 for typical arrangements of drop wires terminated in 49-type terminals on aerial cable. Limit the number of drop wires in ready access 49-type terminals to eight (8).

- 3.08 When placing new connections, the wire should be run through all the hangers below the terminal to provide enough slack to enable any wire to reach any pair of binding posts in the event of changes in cable pair assignments. **Warning:** Wire should be loosely placed to avoid sharp bends at the B ties which may cause damage to the wire insulation.

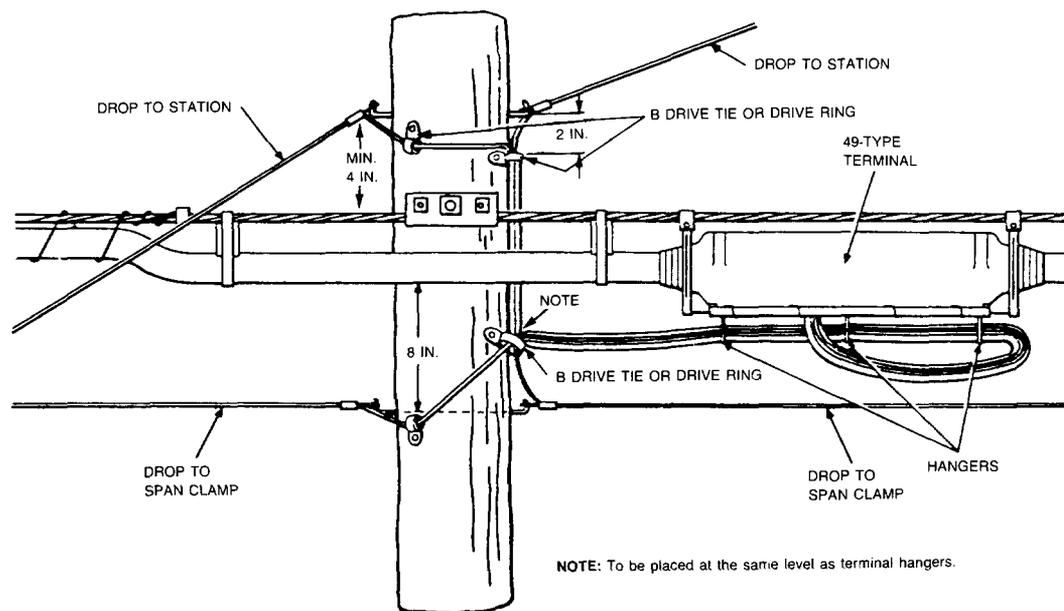


Fig. 3 - Running Drop Wire to 49-Type Terminal at Pole

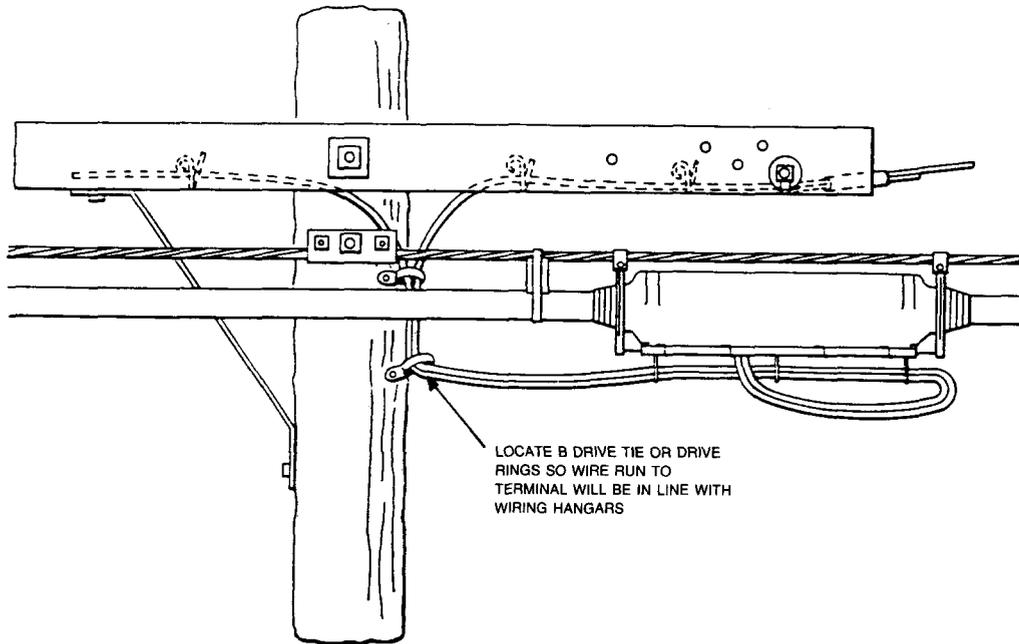


Fig. 4 - Running Drop Wires to 49-Type Terminal From Guard Arm

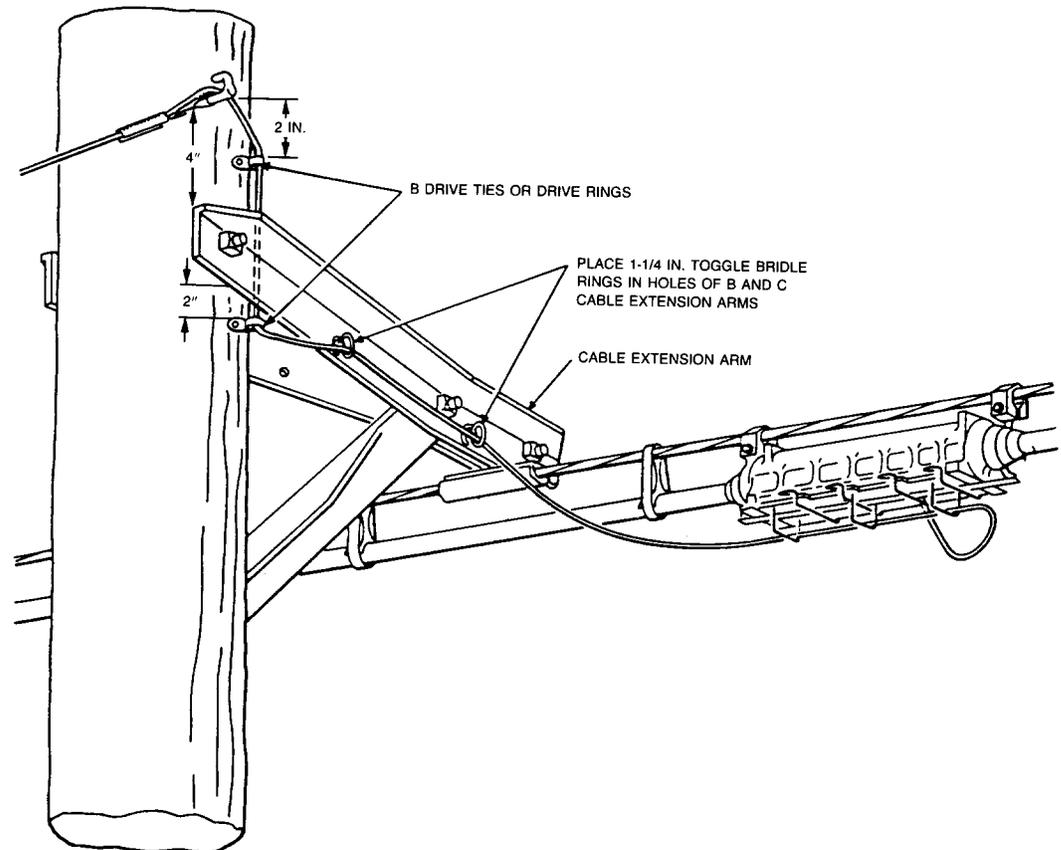


Fig. 5 - Running Drop Wires to 49-Type Terminal From Cable Extension Arm

#### 61-TYPE TERMINALS

3.09 Refer to Fig. 6 for a typical arrangement of drop wires at a 61-type terminal.

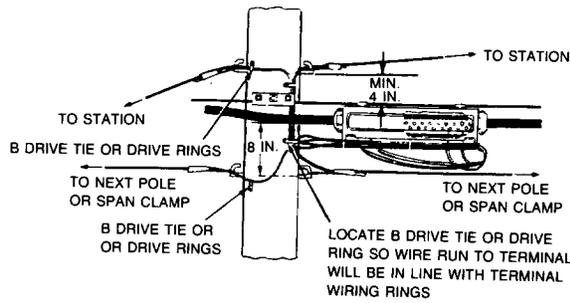


Fig. 6 - Running Drop Wires to 61-Type Terminal

104- OR 105-TYPE TERMINALS

3.10 Refer to Fig. 7, 8, and 9 for typical arrangements of drop wires at 104- or 105-type cable terminals on aerial cable.

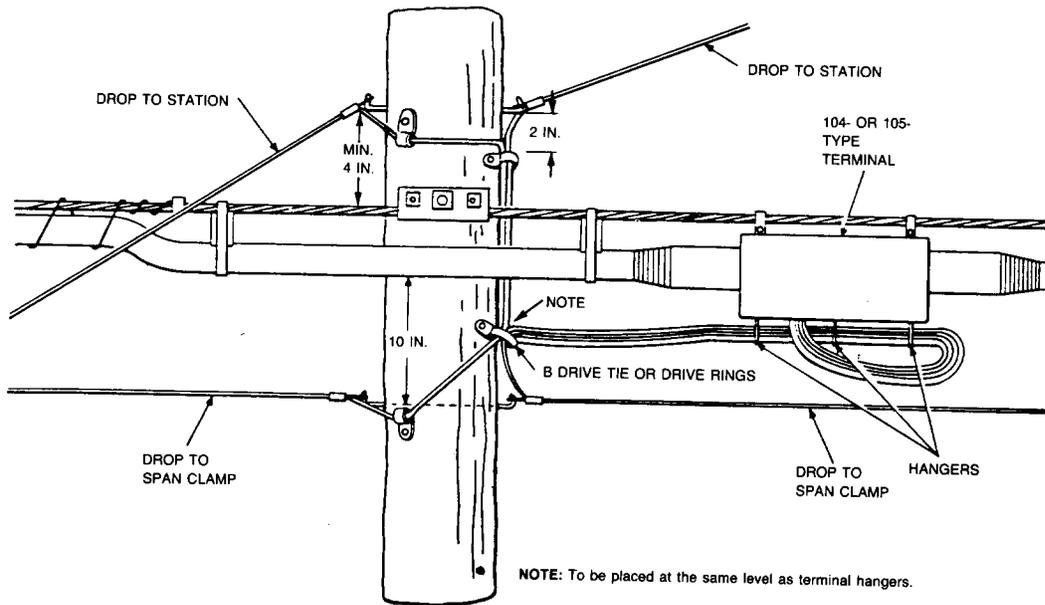


Fig. 7 - Running Drop Wires to 104-105-Type Terminal at Pole

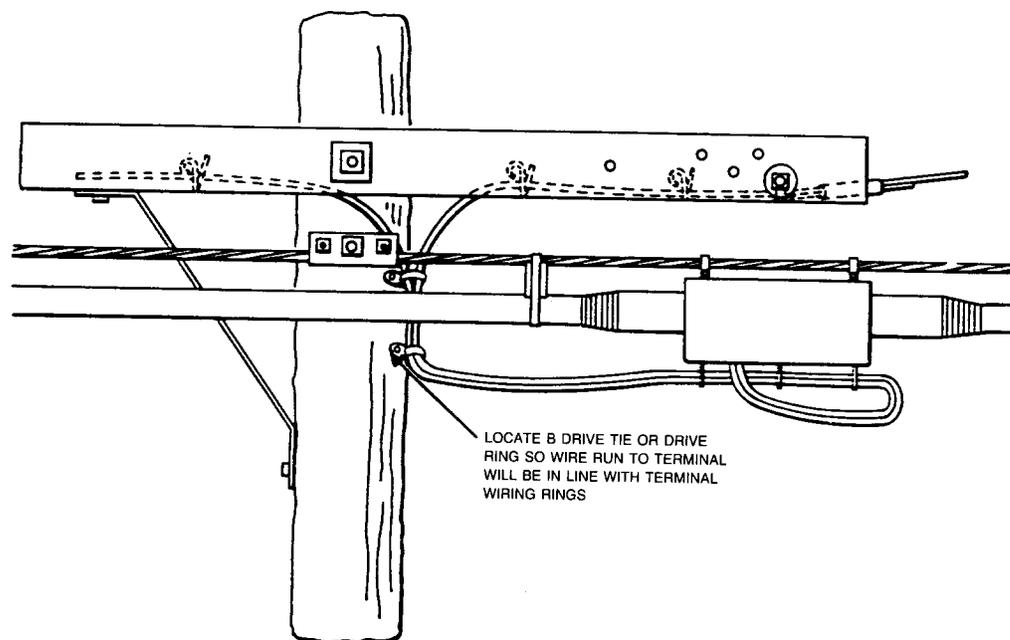


Fig. 8 - Running Drop Wires to 104 or 105-Type Terminal From Guard Arm

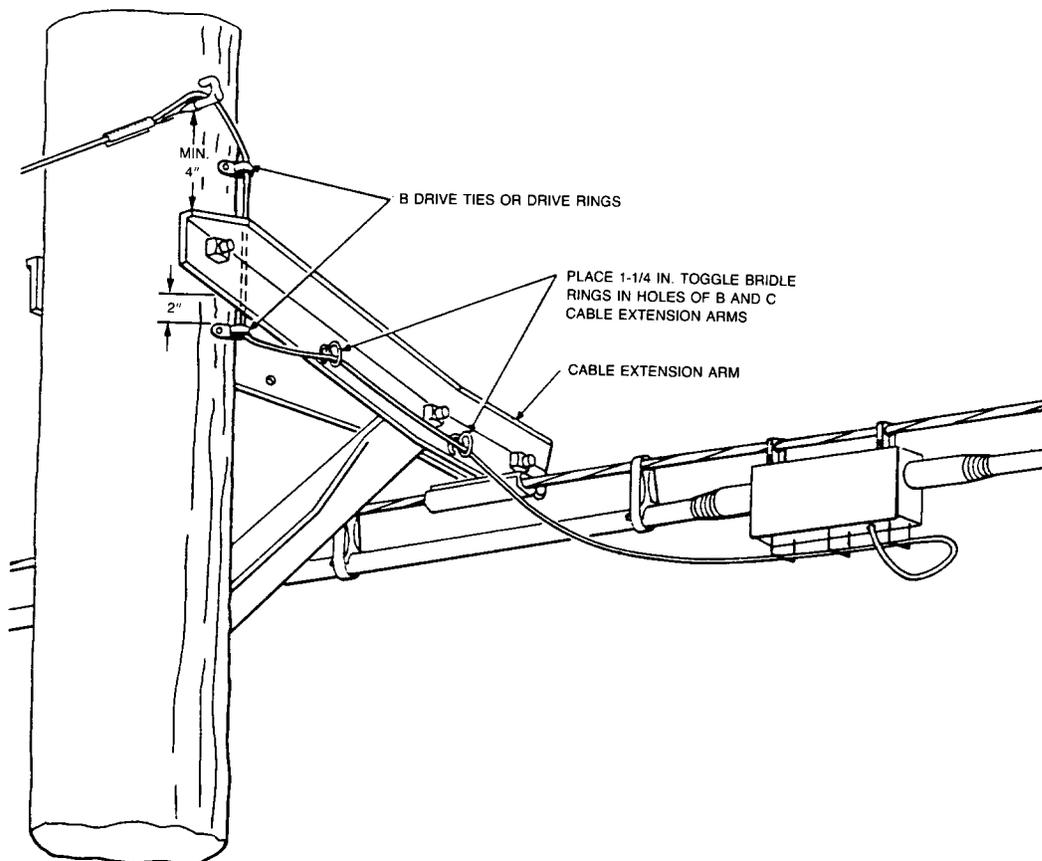


Fig. 9 - Running Drop Wires to 104- or 105-Type Cable Terminal  
From Cable Extension Arm

N-TYPE TERMINAL

3.11 Refer to Fig. 10, 11, and 12 for typical arrangements of drop wires at N-type terminals. Note that the arrangements of wires are similar at all strand-mounted cable terminals.

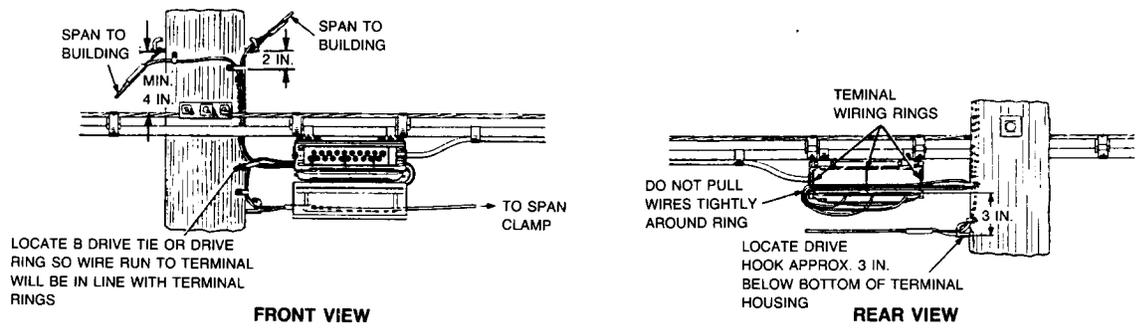


Fig. 10 - Running Drop Wire to N-Type Cable Terminal From Pole

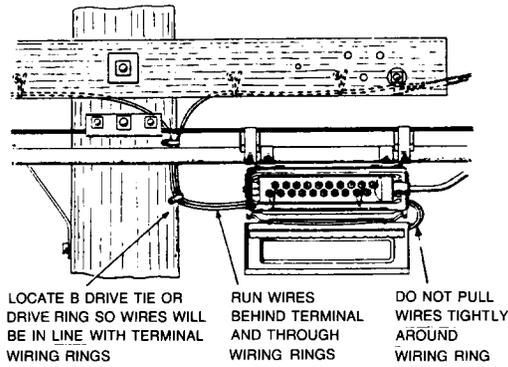


Fig. 11 - Running Drop Wire to N-Type Cable Terminal From Guard Arm

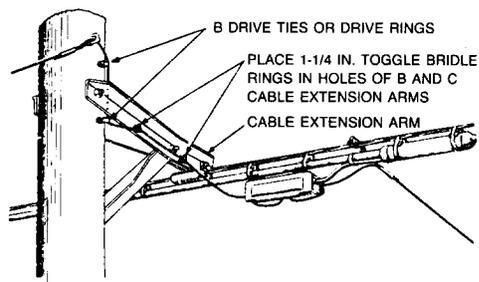


Fig. 12 - Running Drop Wire to N-Type Cable Terminal From Cable Extension Arm

4. POLE-MOUNTED TERMINALS

- 4.01 All vertical drop and block wire runs on poles should be secured by B drive ties or drive rings and should be spaced in a straight line, approximately 24 inches apart. This line of B drive ties should be about 45 degrees around the pole from the face or side of the pole on which the terminal is mounted.
- 4.02 Wires should be routed through the drive tie and then to the terminal entrance hole.
- 4.03 Cut the wire to the proper length for terminating.
- 4.04 Remove the required amount of insulation from the wire to terminate on the binding post.
- 4.05 Insert the wire through the wire entrance hole and terminate it on the binding posts so the end of the insulation is about 1/8-inch from the washers on the binding post.

N-TYPE TERMINALS

4.06 Refer to Fig. 13 and 14 for typical arrangements of drop wires at N-type

LOCATE B DRIVE TIE OR DRIVE RING SO WIRES WILL BE IN LINE WITH TERMINAL WIRING RINGS	RUN WIRES BEHIND TERMINAL AND THROUGH WIRING RINGS	DO NOT PULL WIRES TIGHTLY AROUND WIRING RING
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Fig. 11 - Running Drop Wire to N-Type Cable Terminal From Guard Arm

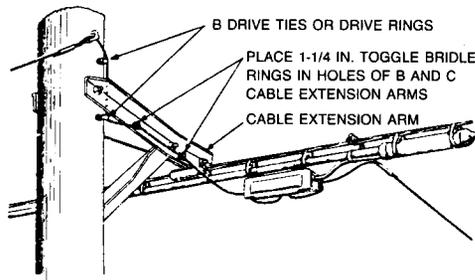


Fig. 12 - Running Drop Wire to N-Type Cable Terminal From Cable Extension Arm

4. POLE-MOUNTED TERMINALS

- 4.01 All vertical drop and block wire runs on poles should be secured by B drive ties or drive rings and should be spaced in a straight line, approximately 24 inches apart. This line of B drive ties should be about 45 degrees around the pole from the face or side of the pole on which the terminal is mounted.
- 4.02 Wires should be routed through the drive tie and then to the terminal entrance hole.
- 4.03 Cut the wire to the proper length for terminating.
- 4.04 Remove the required amount of insulation from the wire to terminate on the binding post.
- 4.05 Insert the wire through the wire entrance hole and terminate it on the binding posts so the end of the insulation is about 1/8-inch from the washers on the binding post.

N-TYPE TERMINALS

- 4.06 Refer to Fig. 13 and 14 for typical arrangements of drop wires at N-type terminals which are mounted on poles.

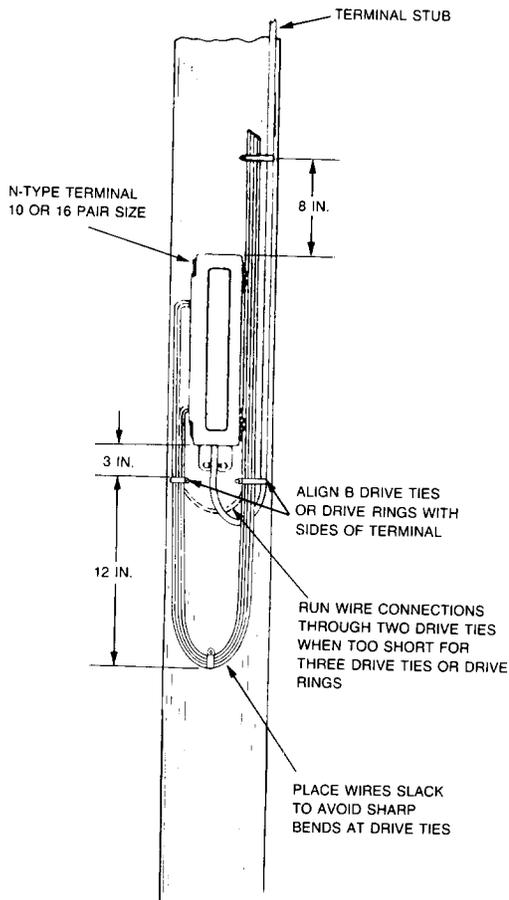


Fig. 13 - Running Drop Wire to 10 or 16 Pair N-Type Cable Terminal Mounted on Pole

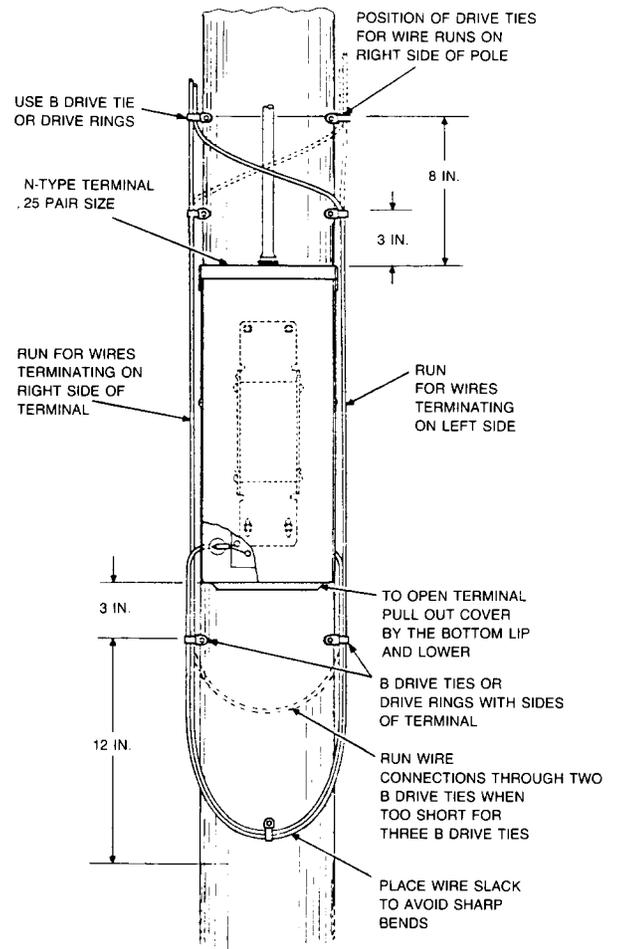


Fig. 14 - Running Drop Wire to 25 Pair N-Type Cable Terminal Mounted on Pole

POLE-MOUNTED CROSS-CONNECTING TERMINALS

4.07 Install drop wire in accordance with the following procedure:

- (1) Place B drive ties on the pole as shown in Fig. 15

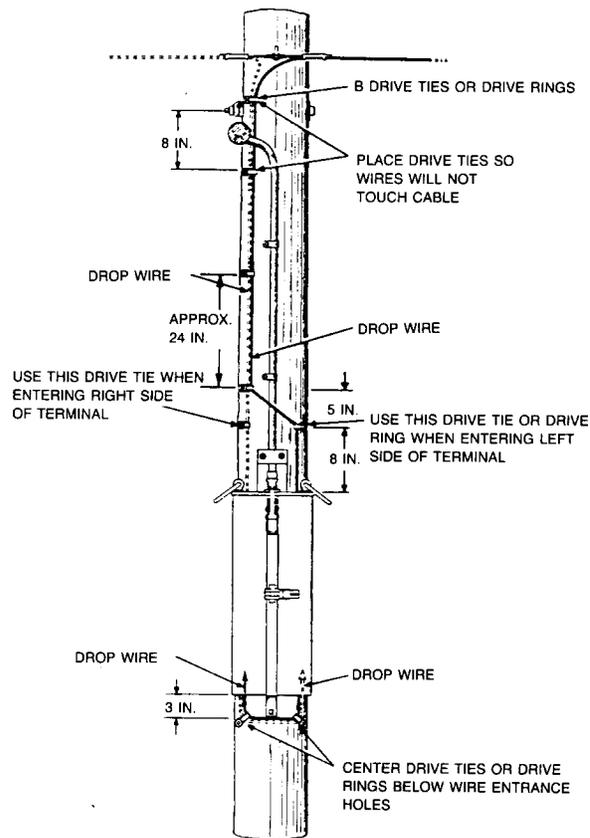


Fig. 15 - Running Drop Wire at Cross-Connecting Terminal

- (2) Where a drop wire is to be terminated on the right side of the terminal chamber, run the wire down the right side of the pole behind the terminal, through the two drive ties below the terminal, and into the wire entrance holes on the bottom left of the terminal box. Where the drop wire is to be terminated on the left side of the terminal chamber, run the wire down the left side of the pole behind the terminal, through the two drive ties below the terminal, and into the wire entrance holes on the bottom right of the terminal box.
- (3) Install cross-connecting wire between the feeder pair binding posts and a vacant drop wire binding post. Then terminate the drop wire as shown in Fig. 16 and 17.

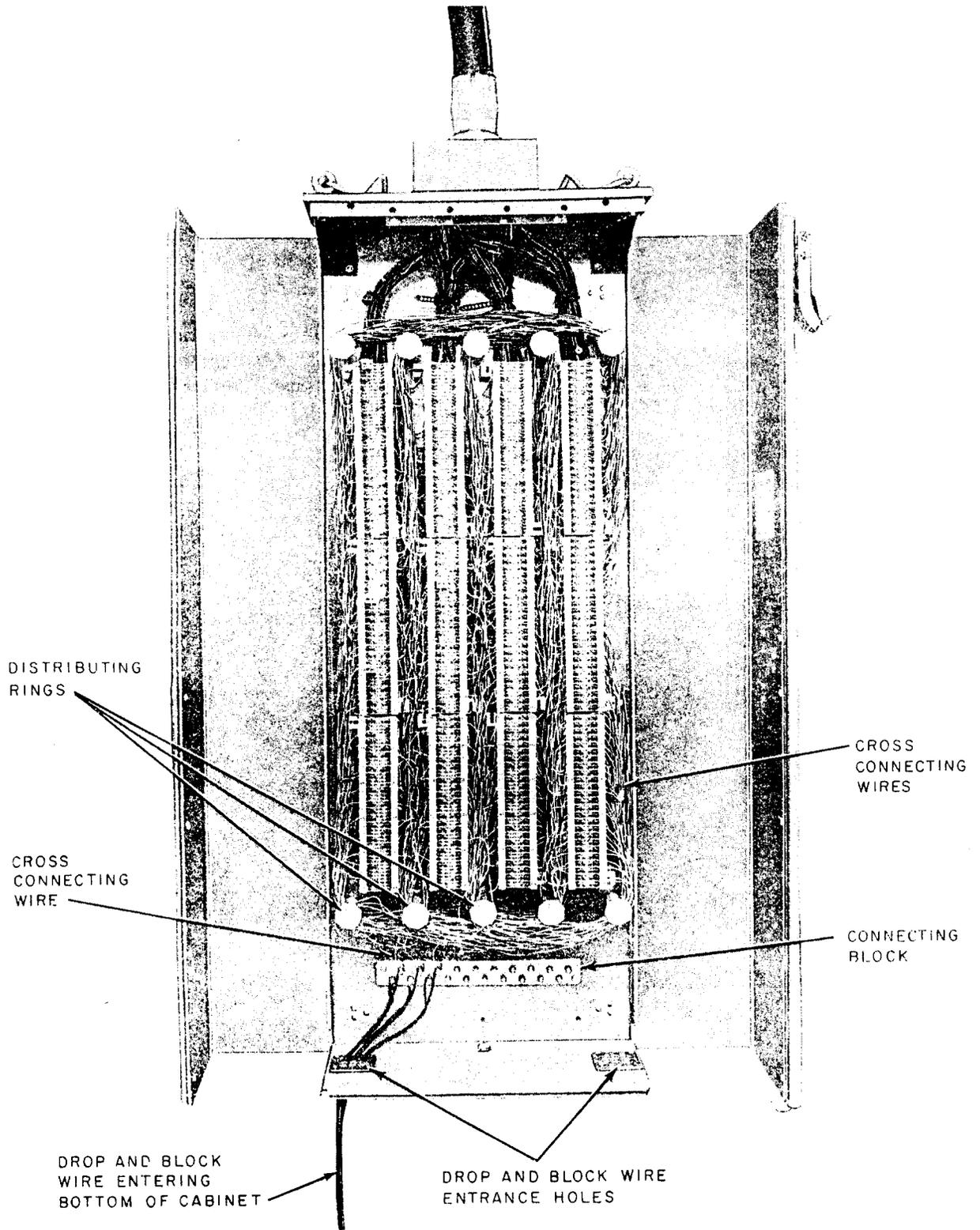


Fig. 16 - Terminating Drop Wire - 101-Type Cable Terminal

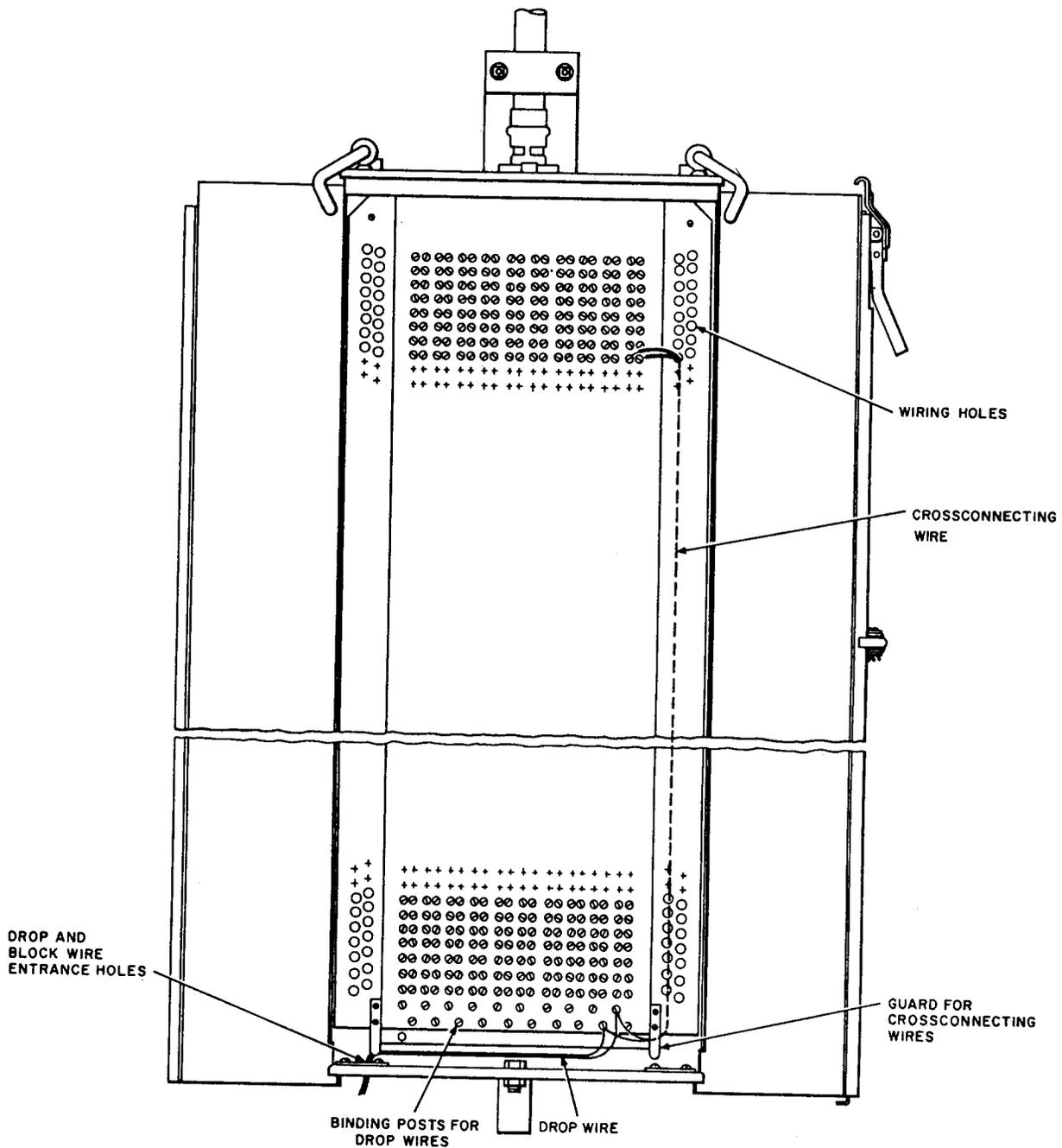


Fig. 17 - Terminating Drop Wire - B-Type Cable Terminals

4.08 Binding posts for terminating drop wire are not provided on the superseded BD and BE terminals. Drop wires are installed in these terminals as follows:

- (1) Proceed as in paragraph 4.07(1) and (2).

- (2) Run the drop wire upward in the wiring channel behind the faceplate extension on the side of the chamber opposite the binding posts on which it is to be terminated, then over the top wiring shelf or the two rings located at the top of the housing, and downward to the proper wiring hole. The routing of wires entering the terminal on the left and right sides is illustrated in Fig. 18. Terminate drop wire between washers on the binding posts of the feeder pair unless two wires are already terminated on these posts. Where one of these two wires is a cross-connecting wire, terminate the second drop wire on the distribution cable pair, but not more than two wires should be bridged on the binding posts of the distribution cable pair. Where more than two wires are to be bridged to the same cable pair, install a 400-2000A wire terminal on the pole outside the terminal, and bridge the new drop and one of the existing drops in the wire terminal.
- (3) Insert the wire into the proper wiring hole, cut the wire to the proper length, and terminate on the binding post with the tracer conductor to the right. Place the wire under the lower washer unless the space is occupied by an existing wire; in which case, place the second wire between washers.

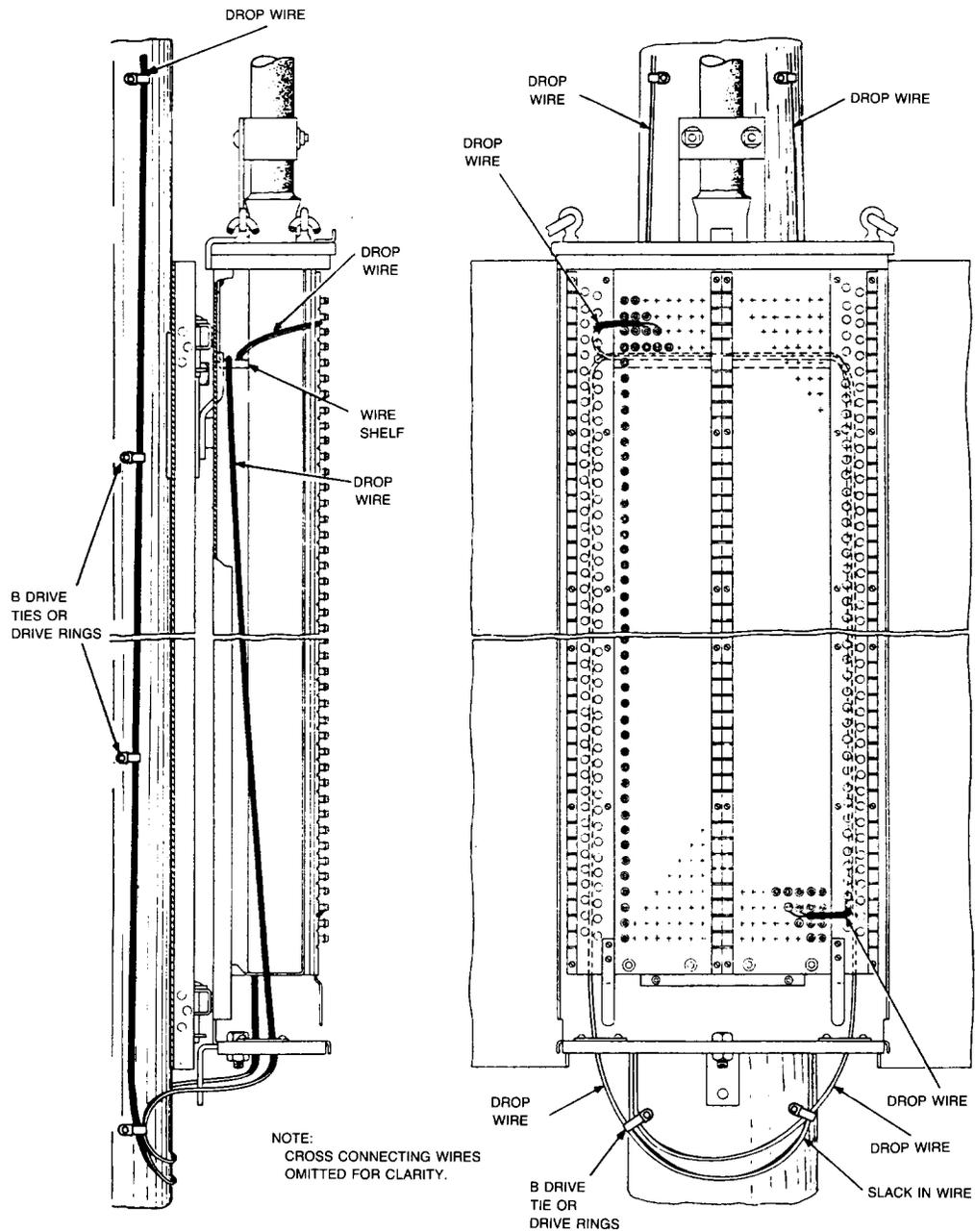


Fig. 18 - Terminating Drop Wire - Superseded BD and BE Cable Terminals

- 4.09 When slack is required in connection with transferring a drop to another cable pair or reinstalling a wire, reroute the drop around the bottom of the chamber in a terminal equipped with wiring shelf or remove from the M rings at the top of the terminal. Where still more slack is needed, splice wire inside the terminal and run the spliced wire over the top as in the case of a new connection.
- 4.10 Install cross-connecting wires in accordance with the following procedures:
- (1) Insert one end of the wire through the proper wiring hole for the binding posts of distribution cable pair. For binding posts to the right of the wiring holes, select a hole immediately above the line of binding posts; for those to the left of the wiring holes, select a hole immediately below the line of binding posts. Select the inner of the two wiring holes of the 300-, 400-, and 600-pair terminals for wires to be terminated on the nearest two pairs of binding posts, and the outer hole for connections to the farthest binding posts.
  - (2) Terminate the cross-connecting wire under the lower washers on the binding posts of a distribution cable pair. Connect the tracer conductor to the right-hand post.
  - (3) When cross-connection is to be made on the same side of the chamber, run the wire in the wiring channel behind the faceplate extension and through the proper wiring hole for the binding posts of the cable pair.
  - (4) When cross-connection is to be made between opposite sides of the chamber, process as follows:
    - (a) In 100-, 200-, 300-, and 400-pair terminals equipped with wiring shelves, route cross-connecting wire terminating on the top third of the feeder cable pairs over the wiring shelf as illustrated by cross-connecting wires in Fig. 19. Run cross-connecting wire to the remaining feeder cable pairs around the bottom of the chamber behind the wire guards. In the case of the 600-pair terminal, route cross-connecting wires over any of the three wiring shelves in the back of the chamber or around the bottom of the chamber, whichever provides the shortest routing.
    - (b) In terminals not equipped with wiring shelves, route cross-connecting wire around the bottom of the chamber. Do not run cross-connecting wires through the M bridle rings provided at the top of the terminal housing. These rings are intended for drop wire connections.

- (5) Allow about 2 inches of slack in each cross-connecting wire. Where, on a subsequent line change, a wire is found to be too short, run a new connection rather than splicing out the short one.
  
- (6) Where it is necessary to assign two distribution cable pairs to form a party line, cross-connect both distribution cable pairs to the feeder cable pair. Terminate one cross-connecting wire under the lower washer and the other wire between washers on binding posts of the feeder pairs. When more than two distribution cable pairs are required for bridging, cross-connect the first two distribution cable pairs to the feeder cable pair as previously outlined. The additional bridges are connected one to each of the associated distribution cable pairs. Terminate one wire under the lower washer and the other wire between washers on the binding posts of the distribution pair.

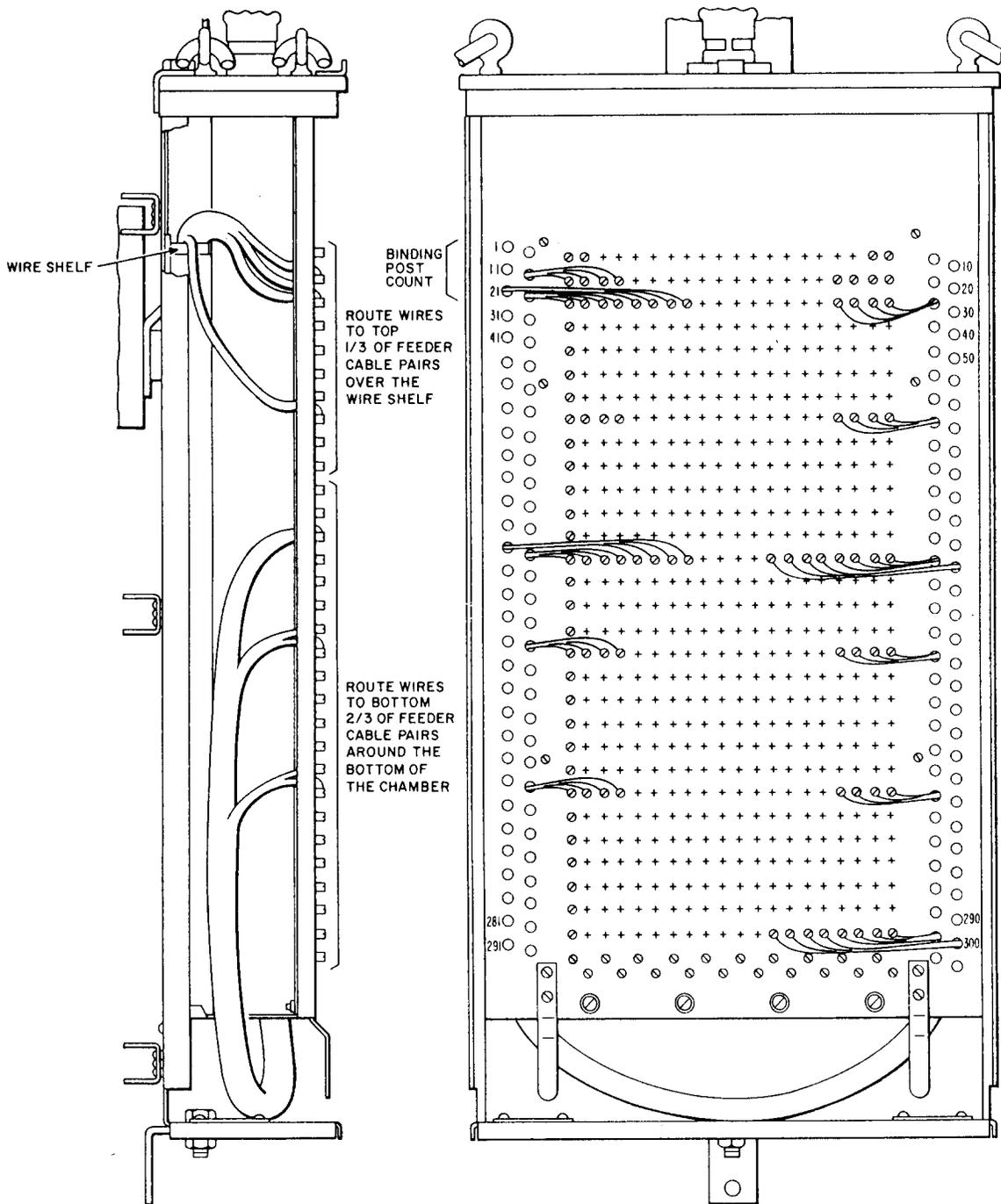


Fig. 19 - Running Cross-Connecting Wire

5. WALL-MOUNTED TERMINALS

5.01 The wiring arrangements at wall-mounted terminals is very much like the arrangements at strand- and pole-mounted terminals, and should always be done in a neat and orderly fashion. Refer to Fig. 20 through 25 for arranging drop and block wires at wall-mounted terminals.

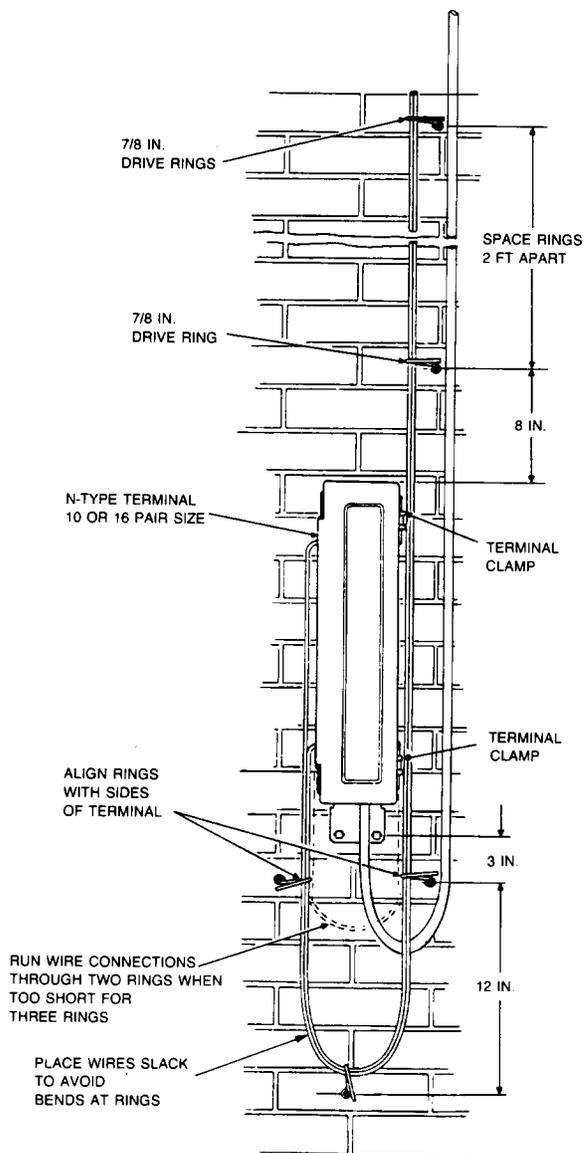


Fig. 20 - Wall-Mounted 10- or 16-Pair Cable Terminal

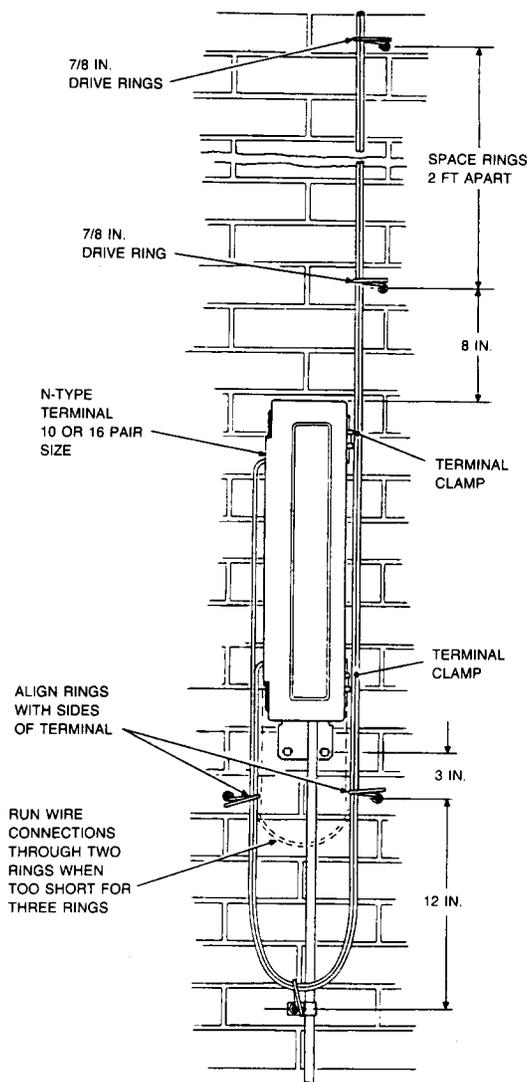


Fig. 21 - Wall-Mounted 10- or 16-Pair Cable Terminal With Stub at Bottom

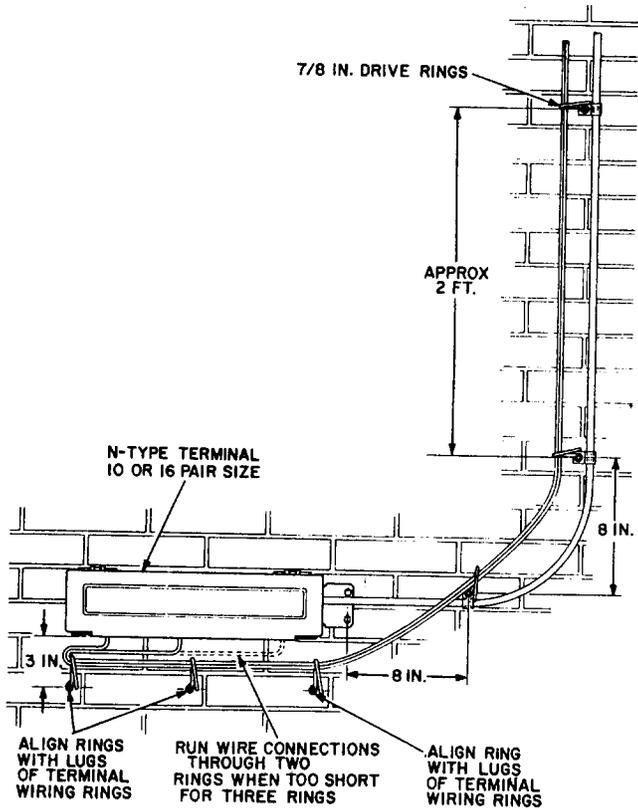


Fig. 22 - Horizontal-Mounted Cable Terminal With Stub Turned Up

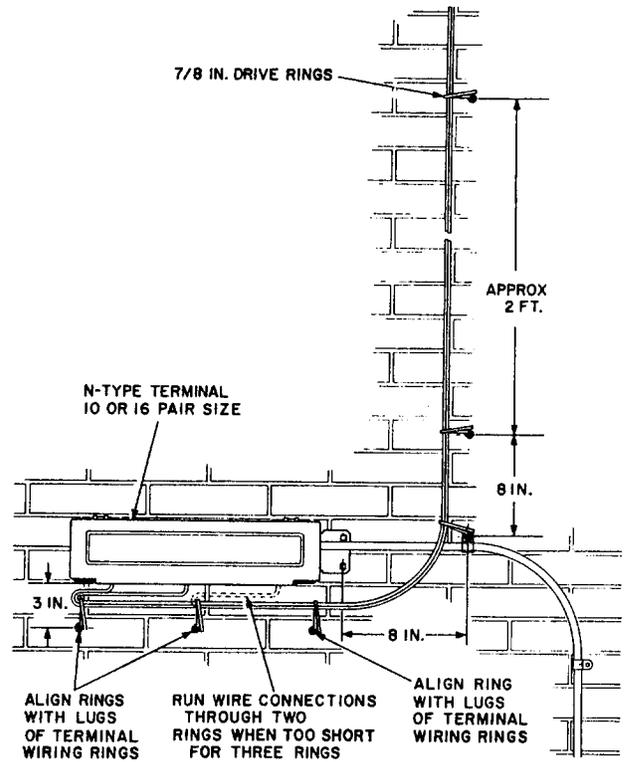


Fig. 23 - Horizontal-Mounted Cable Terminal With Stub Turned Down

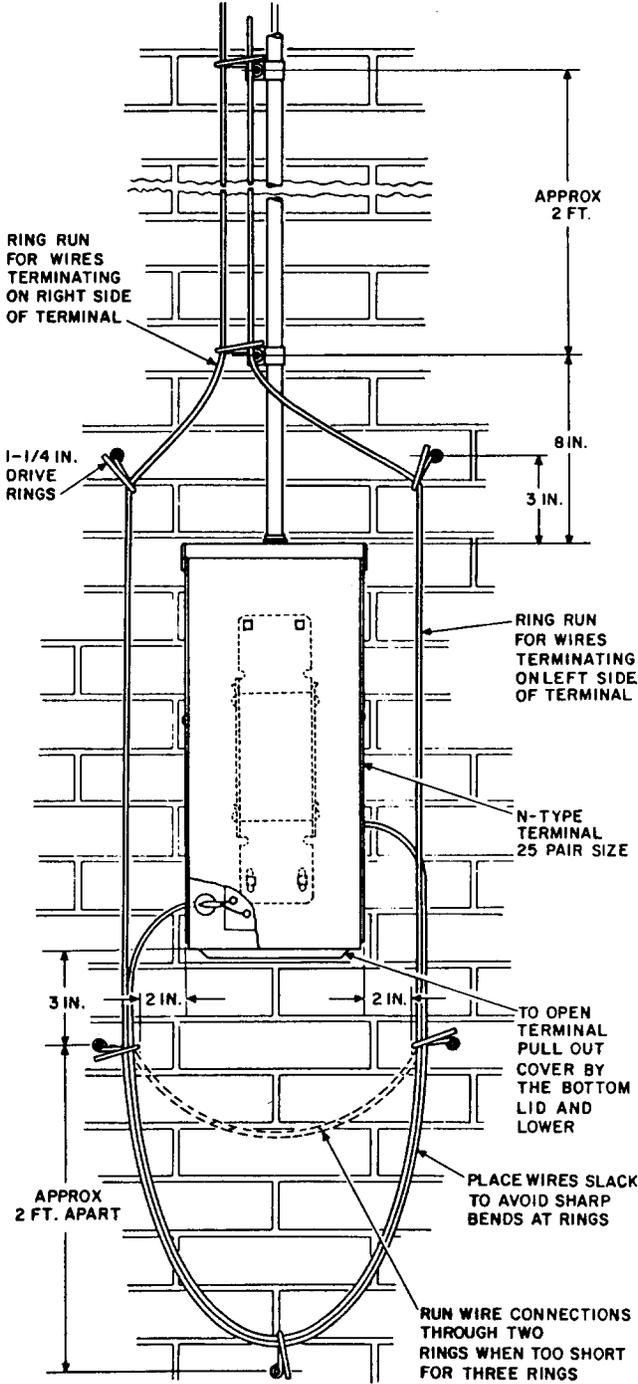


Fig. 24 - Wall Mounted 25-Pair Cable Terminal With Stub at Top

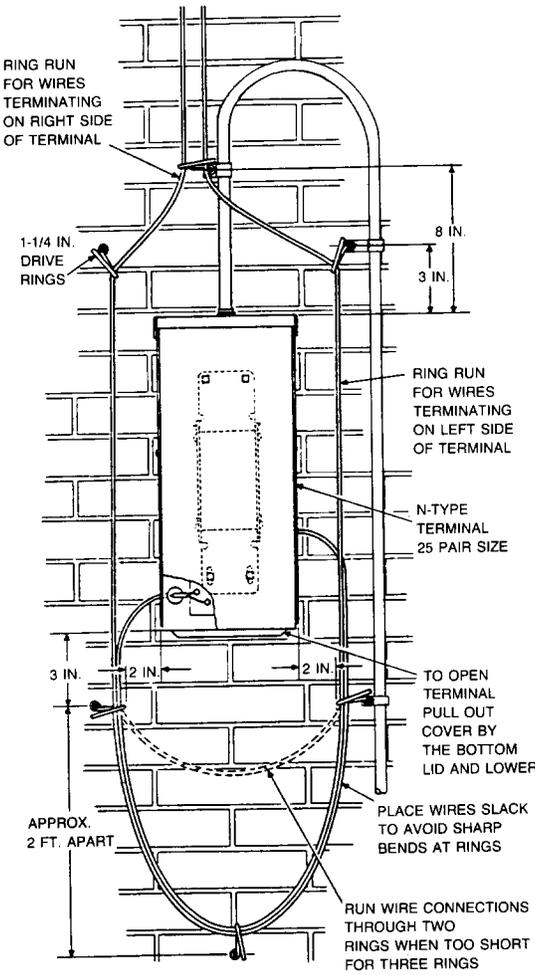


Fig. 25 - Wall Mounted 25-Pair Cable Terminal With Stub at Bottom

5.02 See Section SW 462-240-900 for a description of 400-2000A wire terminal. The 400-2000A wire terminal supercedes the 101A, 101B, 101B2 and 101C wire terminals. It is used for making party line taps in drop and block wire runs, in distributing drops from cable and open wire lines, and in placing fusible links. The 400-2000A wire terminal should be mounted on poles on walls as shown on Fig. 26, 27, 28 and 29.

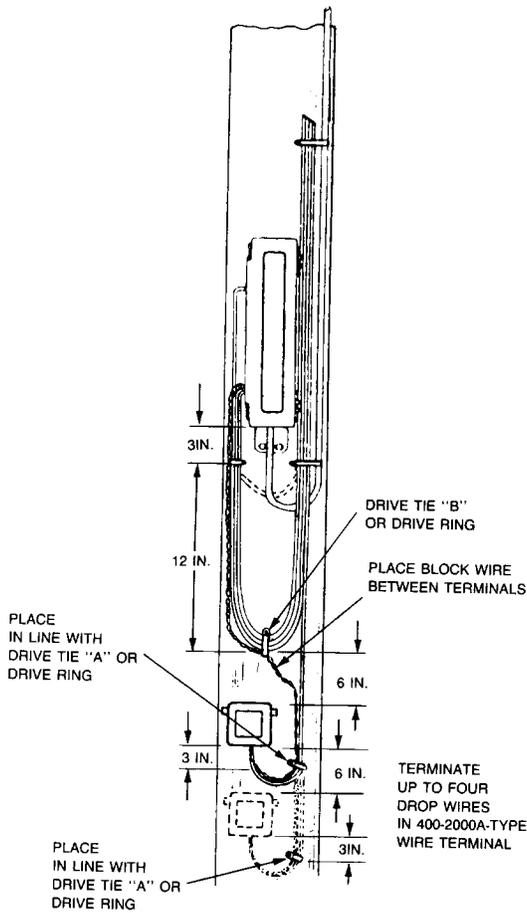


Fig. 26 - Wiring 400-2000A-Type Terminal at Pole Mounted Cable Terminal

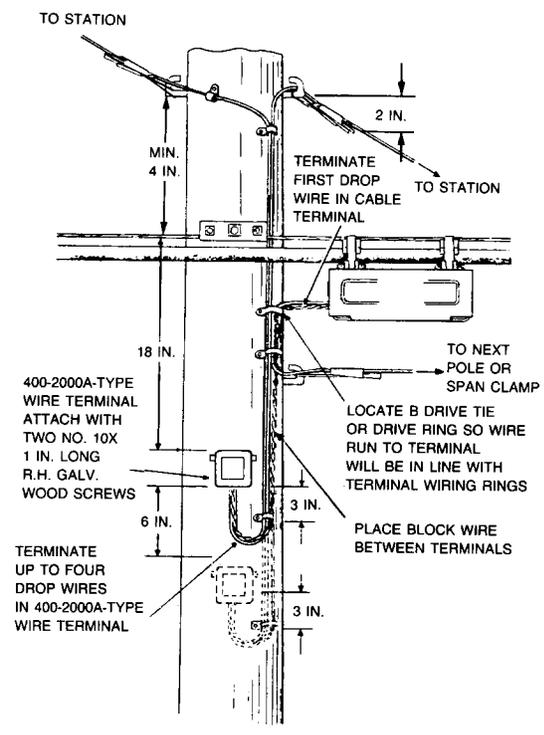


Fig. 27 - Wiring 400-2000A-Type Terminal at Strand-Mounted Cable Terminal

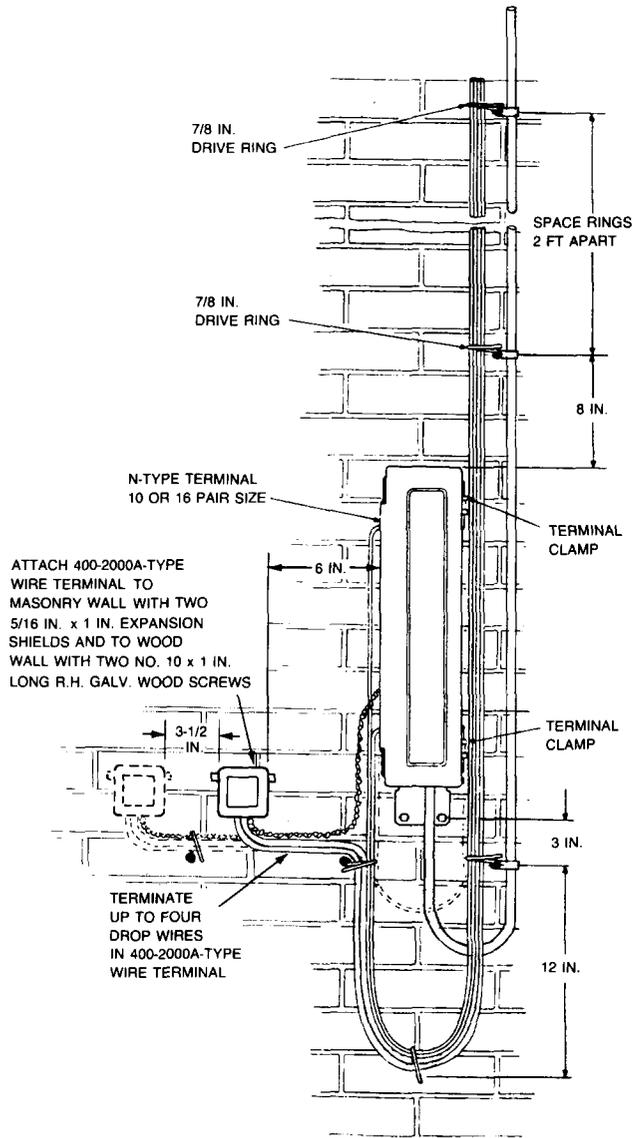


Fig. 28 - Wiring 400-2000A-Type Terminal with Vertical Wall-Mounted Cable Terminal

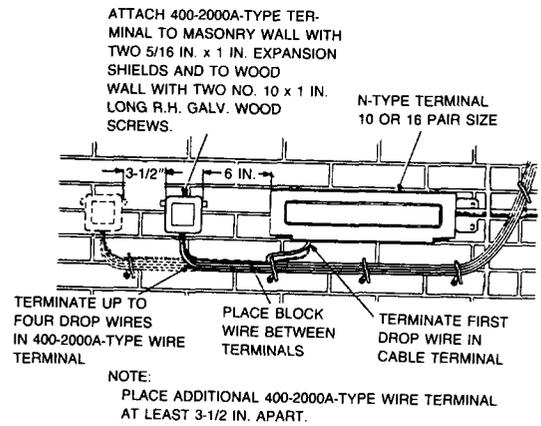


Fig. 29 - Wiring 400-2000A-Type Terminal with Horizontal Wall-Mounted Cable Terminal

6. BINDING POST CAPS AND INSULATORS

6.01 These instructions cover the placing of binding post caps and binding post insulators in cable and wire terminals as protection against accidental contacts on special service lines and as a means of minimizing faceplate leakage. Binding post caps and insulators may also be used to prevent corrosion. Table A lists the binding post caps and usage.

NOTE: Special service lines cover such circuits as program supply, radio and television network services, picture transmission, teletypewriter, fire, police, power remote control, burglar alarm, etc.

TABLE A  
BINDING POST CAPS

BINDING POST CAP	COLOR	USAGE
B	Red or Black	On nonworking posts of N, T, and 61-type cable terminals
C	Red or Black	On working posts of N, T, and 61-type cable terminals
D	Red or Black	On 7A fuses installed in L type fuse chambers
E	Red or Black	On 49-type cable terminals
F	Red or Black	On B buried cable terminals and connecting blocks equipped with insulation crushing washers - 30-2, 57B, and 57A types
G	Red or Black	On 30-type connecting blocks
H	Red or Black	On 31-type connecting blocks

6.02 The B binding post cap is a molded neoprene cap which completely covers nonworking binding posts in N, T, and 61-type cable terminals.

6.03 The C, E, F, G, and H binding post caps are similar to the B cap in design, except they have a hole and slit on the side to permit their installation over wires terminated on binding posts.

- 6.04 The D binding post cap is similar to the B cap except it has a small opening at one end. This cap is designed to fit over the end of a 7A fuse installed in L-type fuse chambers.
- 6.05 Binding post caps are supplied in red and black colors as a means of identifying the types of circuits on which they are being used. The red cap is intended for use on special service lines as protection against accidental contacts and the black for minimizing faceplate leakage and other purposes.
- 6.06 The binding post insulator is a phenol fiber sleeve, open at both ends and slotted lengthwise to admit wire termination on the binding post. These insulators have a red enamel finish. Binding post insulators are intended as protection against accidental contacts for special service lines which are terminated in terminals not suited to the use of binding post caps.
- 6.07 Particular care shall be exercised not to dislodge the red binding post caps or binding post insulators associated with special service lines while working in terminals, nor should they be moved without proper authorization.

#### PLACING BINDING POST CAPS

- 6.08 Terminal blocks and binding posts which show evidence of corrosion, insect residue or other foreign deposits should be cleaned with Freon MS-181 (or equivalent), as shown in Section 644-203-101. Install the B binding post caps after all moisture is removed from around the binding posts.
- 6.09 More effective protection against corrosion, insect residue, etc., may be provided with the use of a gel-filled binding post cap. The binding posts must be cleaned and moisture removed as previously mentioned in paragraph 6.08, prior to installation of the gel-filled caps.
- 6.10 When installing the B binding post caps, first turn down the nut of the binding post fingertight. Force the cap over the binding post, without twisting, until the skirt of the cap is in good contact with the faceplate. If the cap is twisted while being forced over the binding post, the skirt of the cap may fold under instead of seating squarely on the faceplate as desired. Figure 30 shows a properly placed binding post cap.
- 6.11 Binding post caps come in seven sizes and are used as listed in Table A.
- 6.12 Prepare the binding posts for the placing of C, E, F, G, and H binding post caps as indicated in paragraph 6.08 for the B caps.
- 6.13 Place the caps over the binding post with the slit in the line with the terminated wire. Force the cap down over the binding post with terminated wire in the slit until the skirt of the cap is in good contact with the faceplate. Adjust the terminated wire so that it is positioned inside the hole of the cap as indicated in Fig. 31.

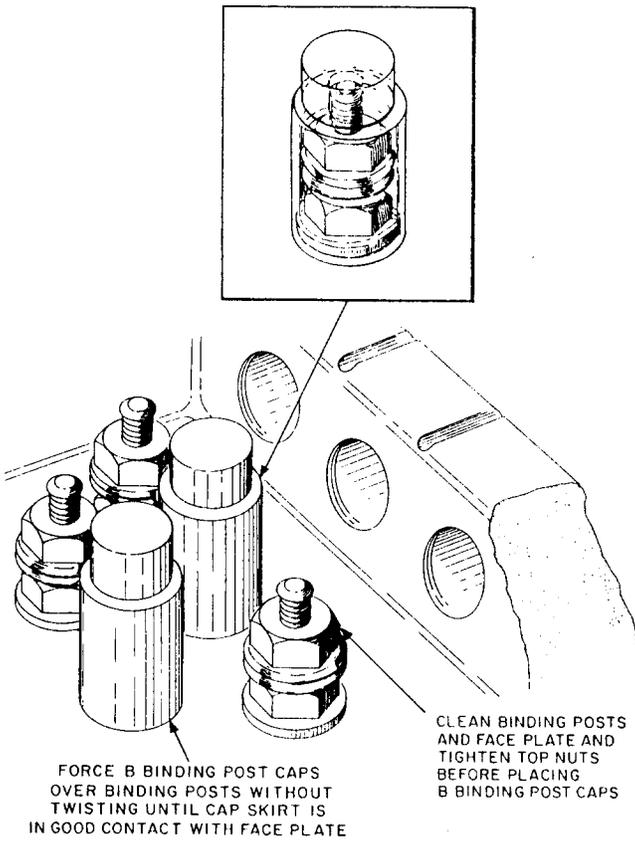


Fig. 30 - Placing B Binding Post Caps

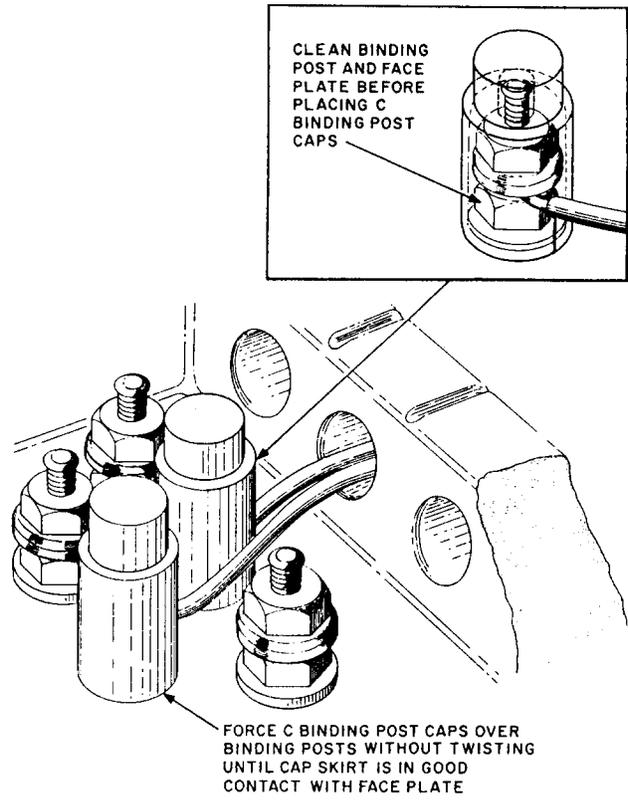


Fig. 31 - Placing C Binding Post Caps

- 6.14 The C binding post caps are shown in Fig. 31. The E, F, G, and H binding post caps are installed in the same general manner. Figure 32 illustrates an E binding post cap placed inside a 49-type terminal.

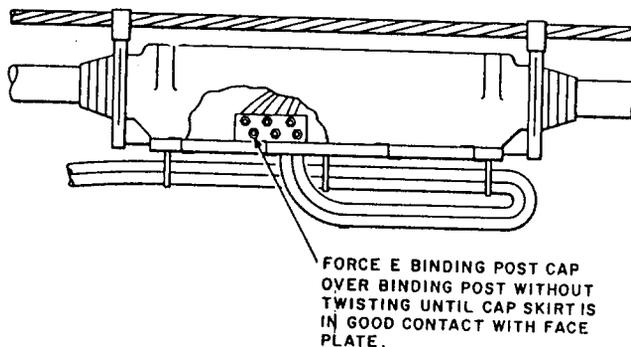


Fig. 32 - E Binding Post Caps Placed in 49-Type Cable Terminal

- 6.15 To place the D binding post cap in 7A fuses installed in L-type fuse chambers, force the cap down over the end of fuse until properly seated.

#### PLACING BINDING POST INSULATORS

- 6.16 Install binding post insulators snugly over binding posts. Where the insulator fits loosely, place a piece of tape around the binding post inside the insulator to obtain a snug fit.
- 6.17 Binding post insulators come in four sizes and are used as listed in Table B.

TABLE B

#### BINDING POST INSULATORS

COLOR	BINDING POST INSULATOR NO.	USAGE
Red	1	On binding posts having 3/8-inch nuts and also the 7T fuse
Red	2	On binding posts having 7/16-inch nuts and also the 7A fuse
Red	3	On screw-type binding posts of BD terminals
Red	6	On termination of alarm and contractor circuits in T pressure contactor-terminals and 3-pair gastight terminals