

SERVING AREA INTERFACE SA-1800 AND SA-2700 (AT-8630) DESCRIPTION AND INSTALLATION

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1. GENERAL

1.01 This section covers the description and installation of the Serving Area Interface SA-1800 and SA-2700 (AT-8630) which serves as an interface between feeder (*IN*) cable pairs and distribution (*OUT*) cable pairs of a serving area.

The maximum number of cable pairs that each serving area interface will accommodate is listed in Table A. Cable pairs may be 22-, 24-, or 26-gauge with any type of plastic insulation.

**TABLE A
CAPACITY OF INTERFACE**

INTERFACE CODE	TOTAL TERMINATIONS	FEEDER PAIRS	DISTRIBUTION PAIRS
SA-1800	1800	600	1200
SA-2700	2700	900	1800

1.02 This section is being revised to include information for waterproofing procedures to provide corrosion protection in the outdoor environment. This is a general revision, therefore change arrows have been omitted.

1.03 The serving area interface is a device for enclosing wiring blocks and connecting blocks for interconnecting feeder cable pairs to distribution cable pairs of a serving area. (A serving area is predominantly a residential area which consists of approximately 350 to 600 housing units within a distinct geographical area.) These interfaces are established under engineering work orders and are introduced into new or existing plant. Serving area interfaces are represented by the symbol (~~EXP~~) on cable location records and work prints. General information pertaining to the Serving Area Concept is outlined in Section 915-251-100.

1.04 The feeder (*IN*) pairs which are committed to a serving area are permanently terminated in 25-pair binder groups on the center panel of the serving area interface.

1.05 The distribution (*OUT*) pairs which originate at the serving area are permanently terminated in 25-pair binder groups on the left and right panels of the serving area interface.

1.06 *Since it is difficult to add cables to an interface after initial installation, it is recommended that the interface be terminated to full capacity initially and unused cable pairs dead ended at nearest convenient splice point. If this is considered impracticable, conduit should be placed under the foundation in a location suitable to feed cable through an unused nipple in the grommet. If conduit is placed but not used, the associated nipple should not be cut but tagged so that it can be located when required.*

1.07 *Orientation of cables should be specified to the cable placing forces to assure that feeder and distribution cables are properly positioned to facilitate termination on proper wiring blocks. This is especially important if conduit is used. Cables must be identified and tagged when placed.*

1.08 Interfaces may be installed by field terminating cables, or stubs may be terminated locally in a garage or other sheltered area, then installed in interface.

1.09 Procedure for running jumper wire within serving area interface is outlined in Section 462-250-105.

2. DESCRIPTION

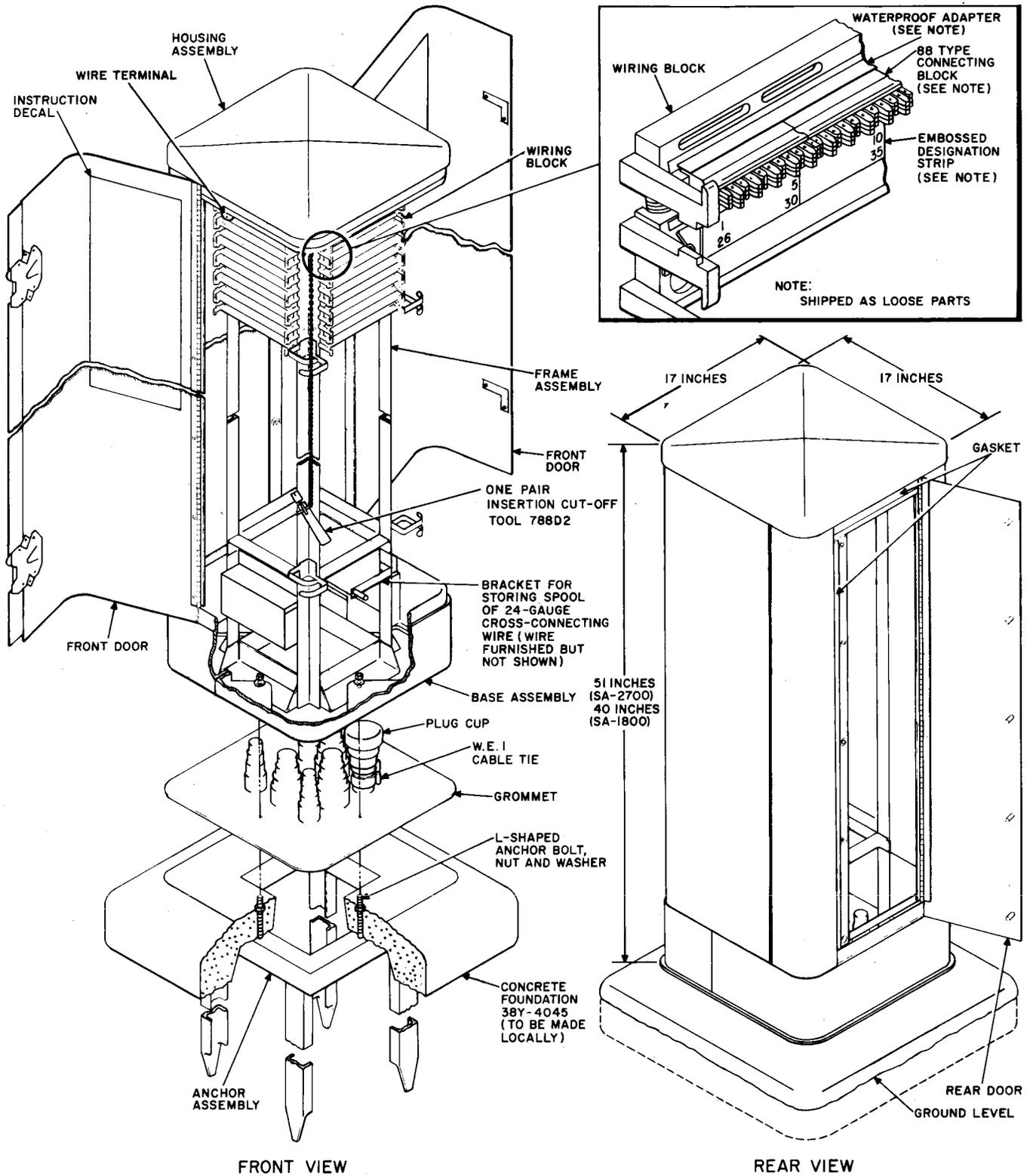
2.01 The Serving Area Interfaces SA-1800 and SA-2700 (Fig. 1) are furnished with the following parts which are packaged in functional groups to facilitate installation. Each package includes a basic instruction sheet and an external list of contents.

- (a) A galvanized steel **housing** is finished in Bell System grey green and equipped with front and back doors with gaskets.
- (b) A galvanized steel **base** assembly finished in Bell System grey green.
- (c) A **frame assembly** for mounting wiring blocks. Feeder cables are to be in the center with distribution cables to be terminated on left or right sides.

- (d) **Anchor assembly** for below ground support and electrical grounding of the interface.
- (e) **Connecting blocks**—These connecting blocks are for terminating cable pairs.
- (f) **Grommet** provides a moisture barrier between interface and ground.
- (g) **Plug cup**—Cup for building moisture dam on incoming air core cables.
- (h) **C test cord AT-8662** for accessing cable pairs.
- (i) **One pair insertion cutoff tool (788D2)**—for seating and cutting jumper wire so that waterproofing cap will seat properly over the wire ends.
- (j) **Designation strips** used to enclose and identify cable pairs (binding post).
- (k) **Waterproofing adapter (288A1-25)**—A plastic channel filled with a grease compound to waterproof the cable side of the connector.
- (l) **Waterproofing cap (88A1-5)**—A plastic cap filled with a grease compound to waterproof and protect the jumper side of connector. These caps are stored in a box at the base of wiring block frame.
- (m) **Hardware** necessary for assembly of the above items.
- (n) **F cross-connecting wire (P-46B361)**—For connecting any feeder pair to any distribution pair. One spool is stored on bracket in front of interface.

2.02 Parts required for installation which must be ordered as required are as follows:

- (a) **Concrete foundation**—Per drawing numbers 38Y-4045-1 or 38Y-4045-2 or equivalent. Must be arranged for locally.



Note: These foundations can be precast or poured in place around the anchor assembly. In the latter case, care should be taken to assure that the mounting bolts are properly located and that bolts are not cast solidly in the concrete, since the bolts must also engage the anchor assembly for grounding purposes. The 38Y-4045-1 foundation is a minimum size foundation. A 38Y-4045-2 foundation; which is larger, may be justified for one or more of the following reasons:

- (1) To provide a working platform for craftsman.
- (2) To maintain a better plumb alignment of the interface in unstable soil conditions.
- (b) **D bond clamps and bond straps**—Required for bonding cable sheath to interface. (Refer to Section 081-852-118.)
- (c) **KS-6660 or KS-16847 indicators**—Used to identify special service circuits.
- (d) **5-pair insertion tool comprised of 788B1 head and 788A1 handle**—For seating conductors and connecting blocks on index strips.
- (e) **B or C encapsulant**—For plugging cables to form moisture seal.
- (f) **WE-1 cable tie**—Used to secure plastic grommet and plug cups to cables.

(g) **5-pair cut off tool comprised of 788C1 head and 788A1 handle**—For cutting the conductors after they have been seated in the index strip.

(h) Table B lists information for ordering tools.

3. LOCATING THE SERVING AREA INTERFACE

3.01 Locate the interface in accordance with the detail plans, complying with the physical consideration outlined in 3.02 in so far as practical. If the specified location does not seem feasible from an installation standpoint or is considered questionable from a maintenance standpoint it should be referred to the engineer for review.

3.02 Considerations for locating the interface are as follows:

- (a) Safety to the employees and public
- (b) Vulnerability to damage by vehicular traffic
- (c) Accessibility (no less than 36 inches from any obstruction, fences, hedge rows, etc)
- (d) Permanency of location
- (e) Public relations (acceptable to property owners and public).

**TABLE B
TOOLS**

ORDERING CODE	TOOL DESCRIPTION
788A1 Tool	Handle only
788B1 Tool	5-Pair insertion head w/o handle
788C1 Tool	5-Pair cut-off head w/o handle
788D2 Tool*	Single pair insertion and cut-off tool for installing jumpers
C Test Cord* AT-8662	Gaining access to a single pair for testing

* Provided with interface

4. INSTALLATION

4.01 Cut the cables to approximately 8 feet above final grad to provide sufficient length for terminating operations.

4.02 Excavate around cables as shown in Fig. 2 to assure that they will not be damaged when placing the anchor assembly.



Fig. 2—Excavate Around Cables

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4.03 Assemble the anchor assembly, then thread the cables through the opening (Fig. 3). Then drive or excavate and plant the legs of the anchor assembly into ground until top is about 1 1/2 inches below final grade.

4.04 Determine the orientation of the serving area interface *as shown on engineering work print*. *If not specified on work print, contact engineer*. SAI should be located to assure the craftsman with the safest possible working condition, eg, position the center panel facing the sidewalk and not the curb.

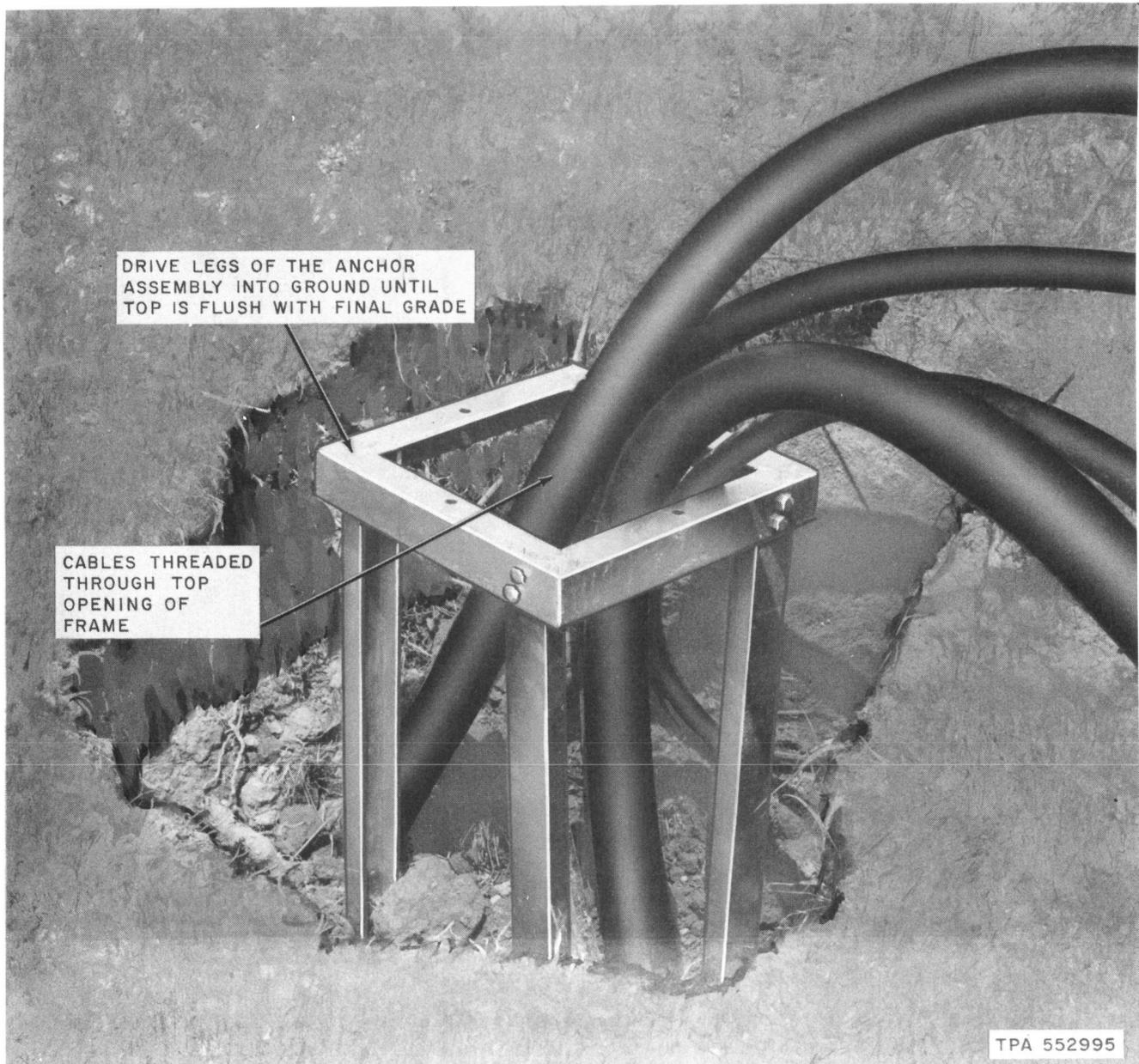


Fig. 3—Positioned Anchor Assembly

4.05 Position the feeder and distribution cables to be terminated in line with their respective feeder and distribution panels and with appropriate nipples on grommet, backfill and *tamp* the soil in place until it is approximately four inches below top of anchor assembly (Fig. 4). This will make the 38Y-4045-1 foundation extended about two inches above grade and the 38Y-4045-2 about one inch

above grade. If the foundation is to be poured in place, it should be poured at this time with cables or ducts in place.

Note: The cables should be tagged by placing forces; however, if the cables are not tagged it will be necessary then to identify them.

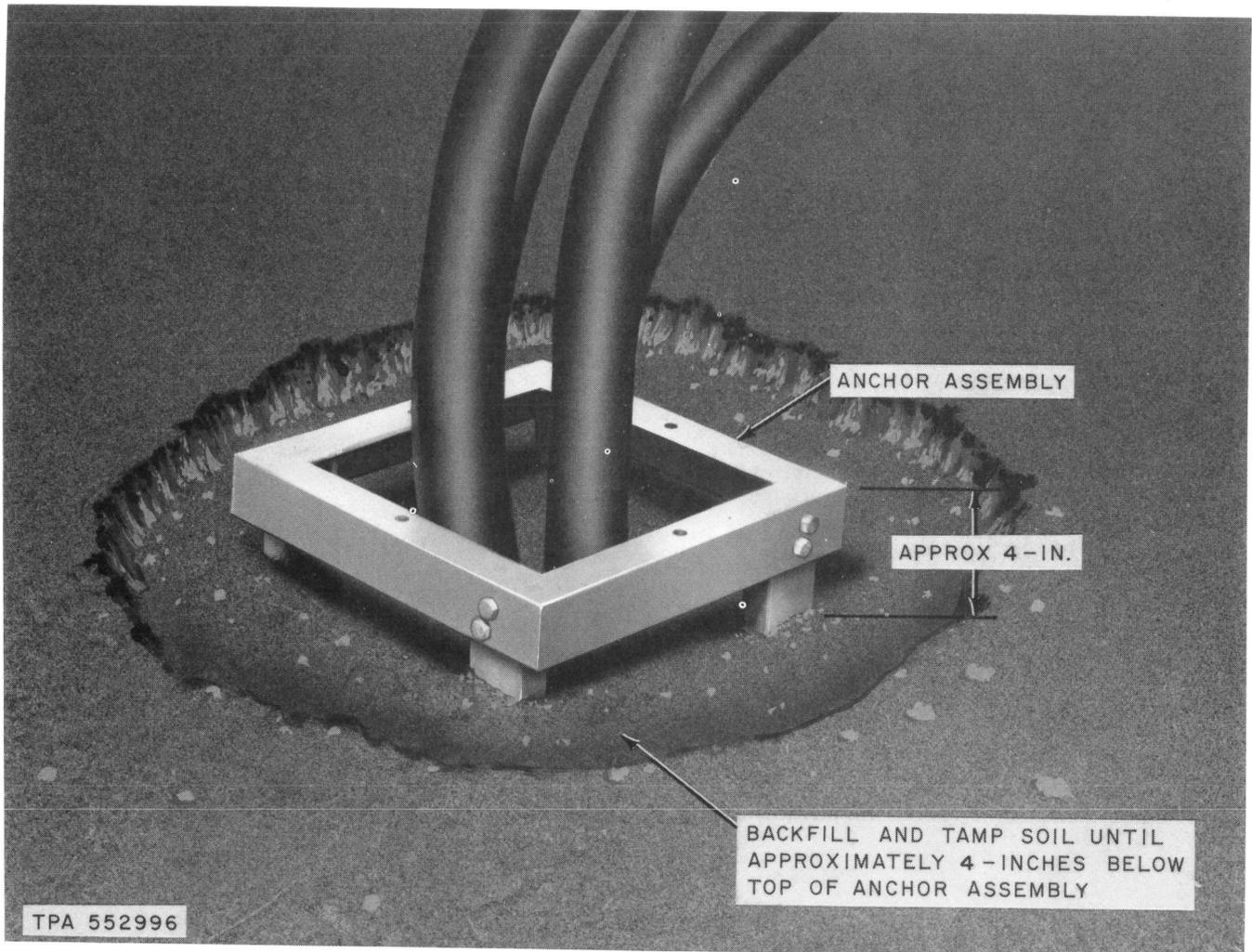


Fig. 4—Back Filled Excavation

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4.06 If a precast foundation is being used, feed the cables through the opening, then position

the concrete foundation on its side adjacent to the anchor as shown in Fig. 5.

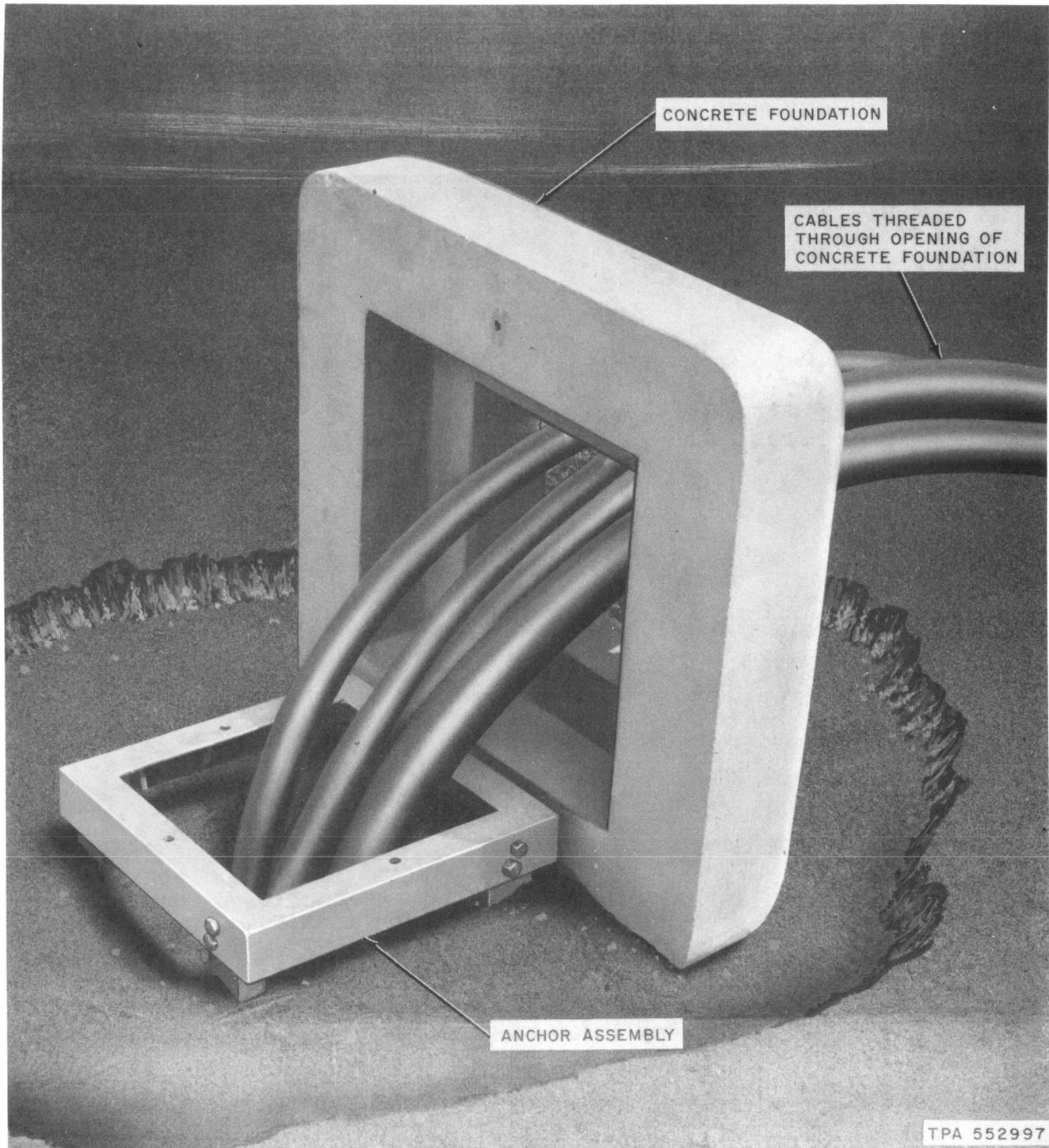


Fig. 5—Cables Threaded Through Opening in Concrete Foundation

4.07 Lower the concrete foundation on top of the anchor (Fig. 6), assure that holes in top of anchor and holes in concrete foundation are in alignment. From underneath the anchor, position

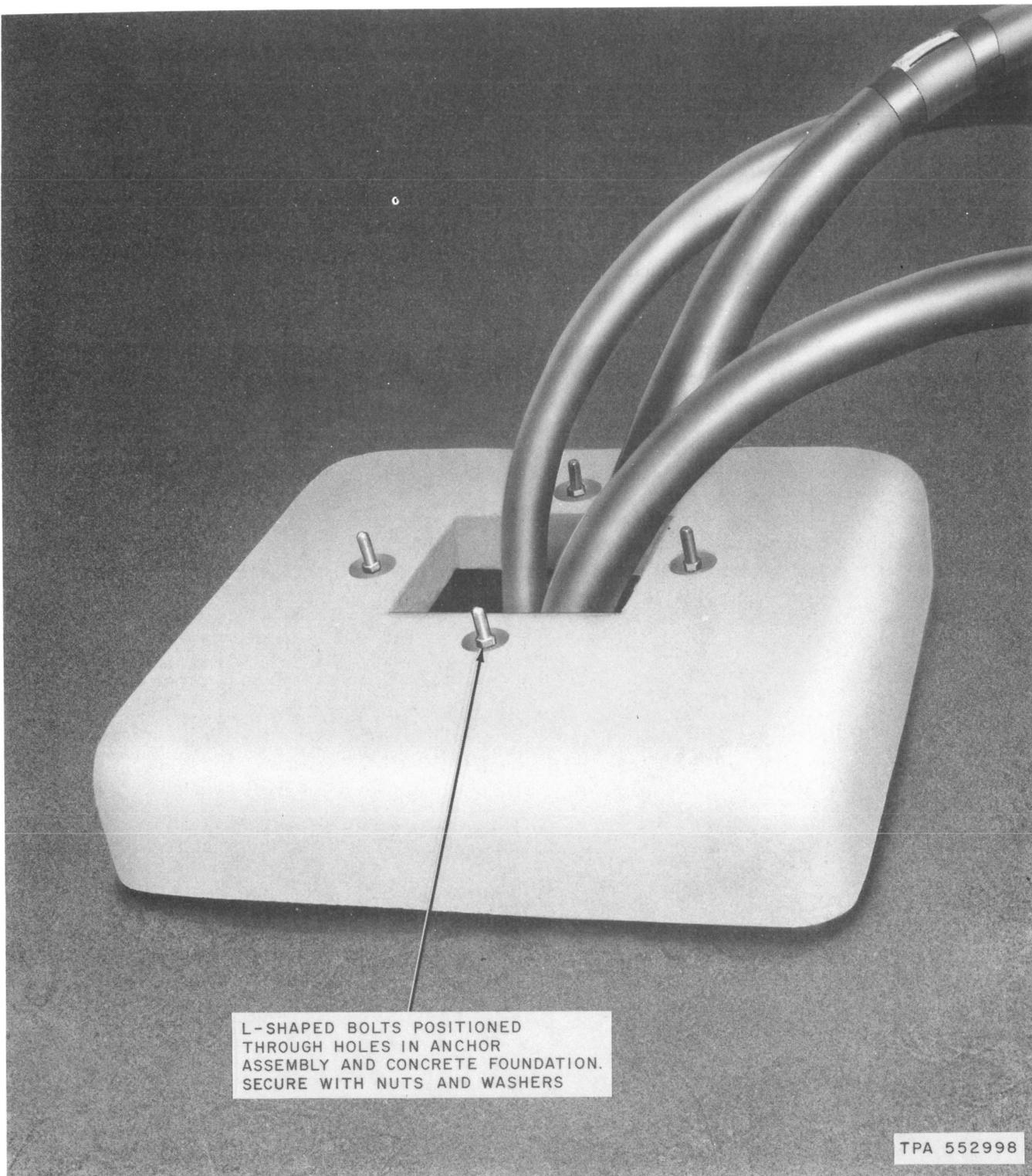


Fig. 6—Positioned Concrete Foundation

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the four L-shaped bolts up through the holes in the anchor and concrete foundation. Secure the bolts with speed nuts and washers.

4.08 Cut the appropriate grommet nipples to fit the cables, lubricate cables, then slide the grommet over the cables and over the bolts protruding from the concrete foundation (Fig. 7). Place WE-1 cable tie around nipples and cable as shown in Fig. 7. Locking device of cable tie should be positioned inside so as not to interfere with frame placement.

5. CABLE SHEATH PREPARATION

5.01 Mark cables between 7 and 9 inches above the grommet, then remove cable sheath from

mark to end of cable. Due to number of cables entering closure and diameter of plug cup it may be necessary to stagger the height of the plug cups to provide space to assure no interference between plug cups. On PAP or PASP sheath cable remove the inner polyethylene jacket.

Note: Waterproof cable does not require further moisture protection; therefore, plug cups and encapsulant are not required on such cables. Filling compound can be removed from waterproof cable as outlined in Section 632-410-204 to facilitate preparation and handling of conductors.

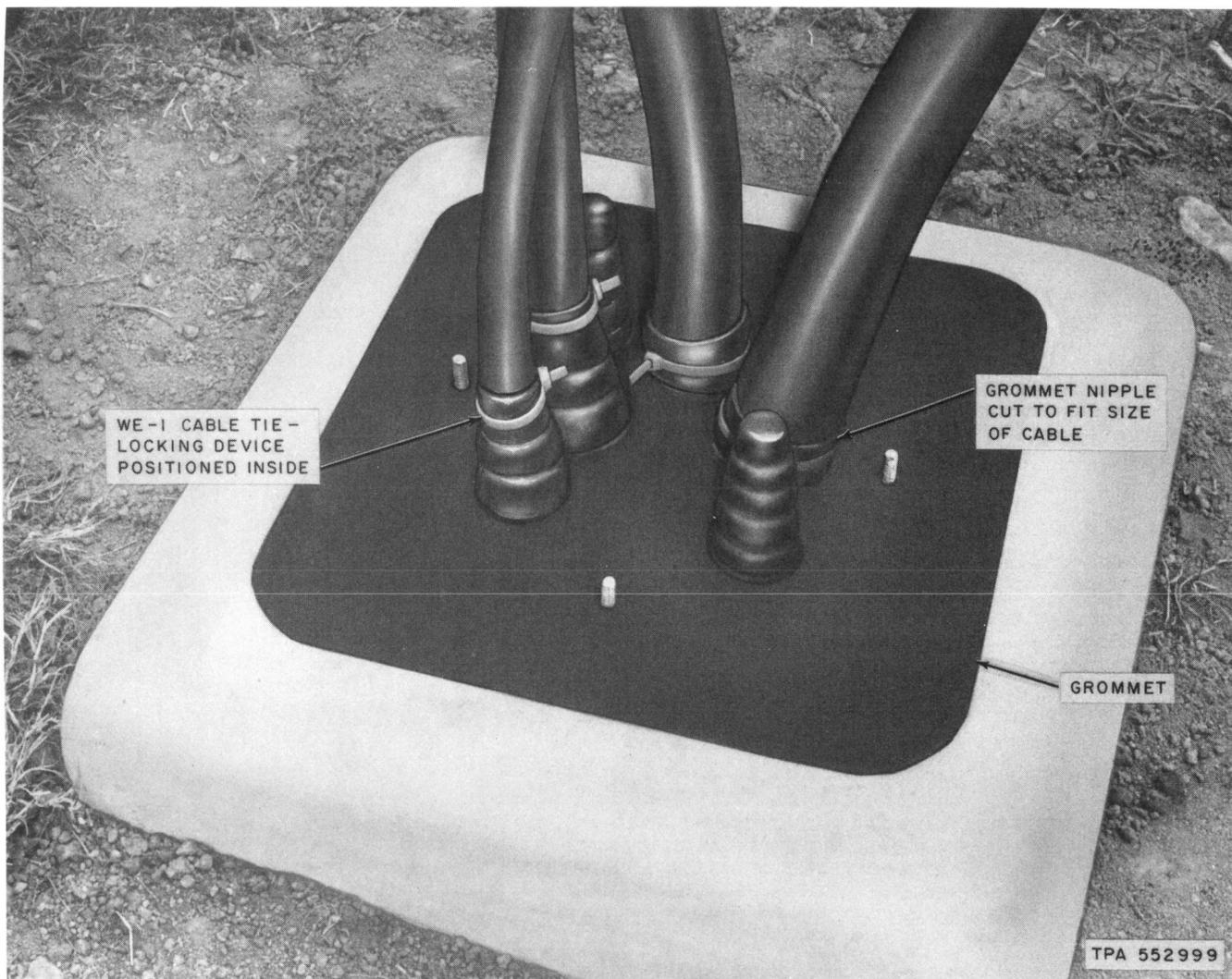


Fig. 7—Installed Grommet

5.02 Cut the plug cup (Fig. 8) to fit cable, then slide the cup over the cable as shown in Fig. 9. Push the cup down as far as possible on the cable sheath to provide space for cable sheath

preparation (Fig. 10). Place a plug cup on each cable. For small cables cut plug at both ends to reduce size (Fig. 8).

5.03 Install supplied D bond clamps and bond straps as outlined in Section 081-852-118.

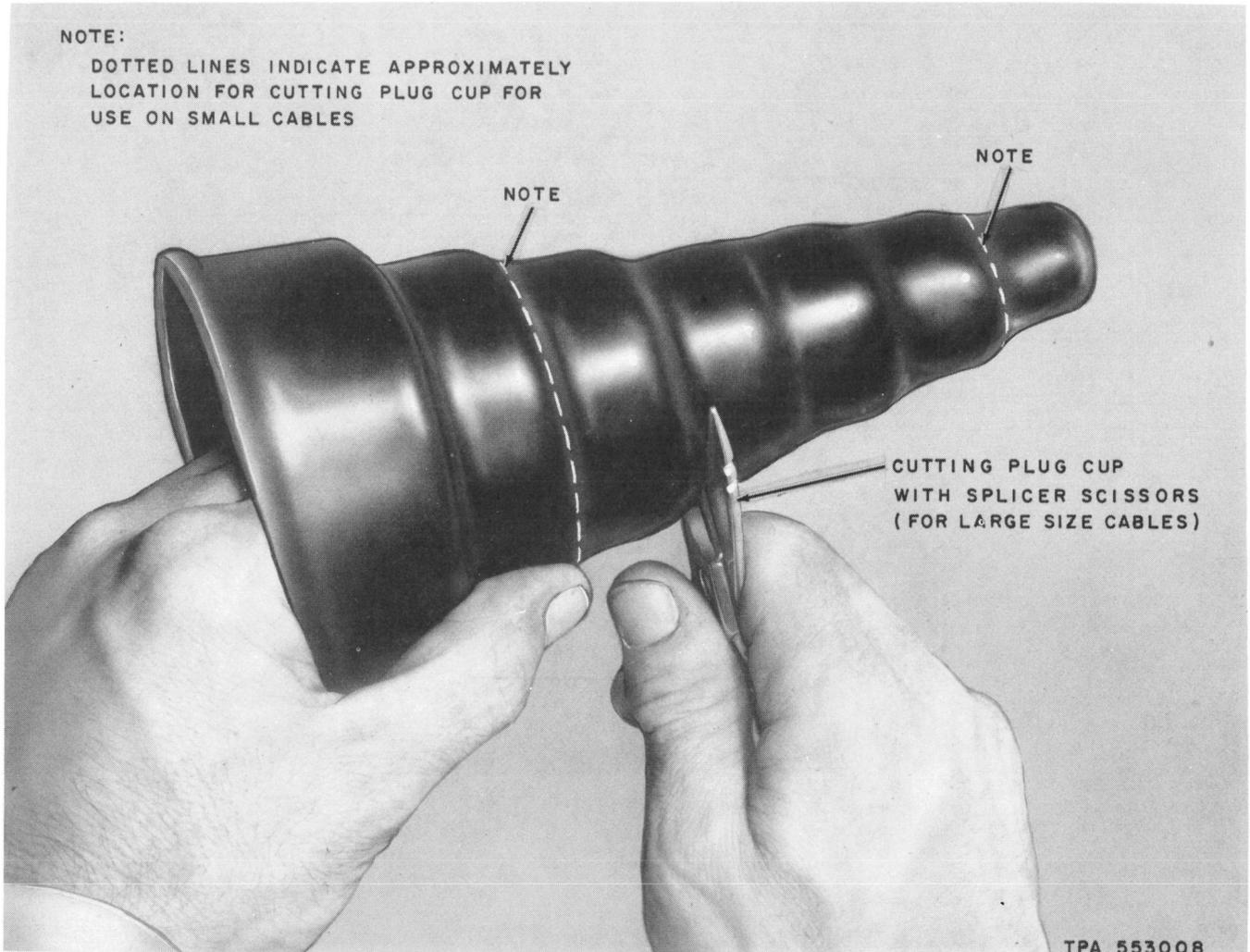


Fig. 8—Cutting Plug Cup

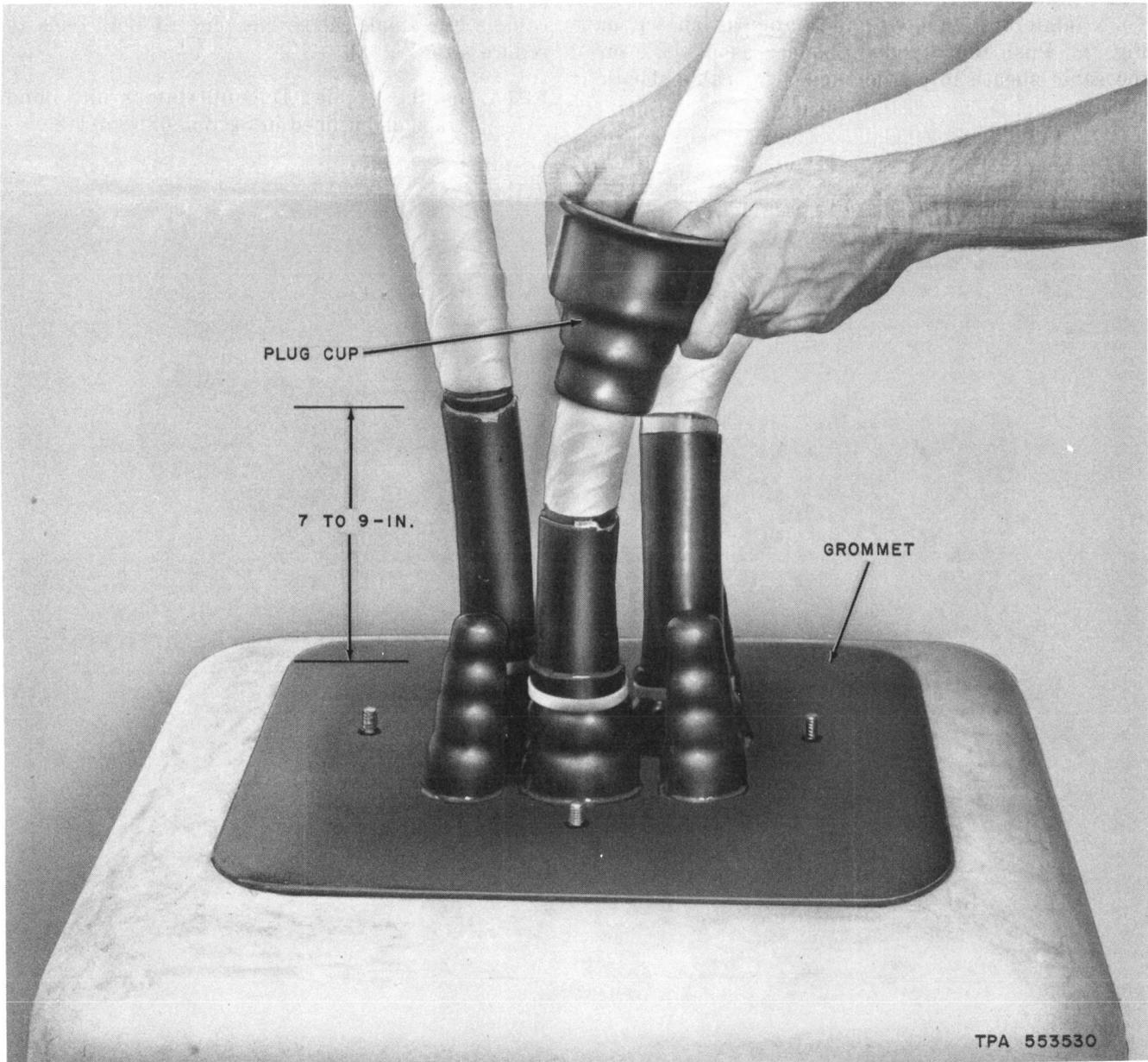


Fig. 9—Placing Plug Cut



Fig. 10—Plug Cups Positioned on Cables

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5.04 Remove core wrap from the cable and apply binder group identification ties at a point approximately six inches above the butt of the cable. (Fig. 11)

5.05 Remove *all* unit binders from the cable to allow the plug compound to flow between the conductors, thus providing a better seal.

5.06 Slide the plug cup up on the cable as shown in Fig. 11 and secure with WE-1 cable tie. The cable is now ready to be plugged, however due to time required for plugging compound to reach no flow condition, it is advisable to complete the wiring operation before pouring encapsulant (Part 13).

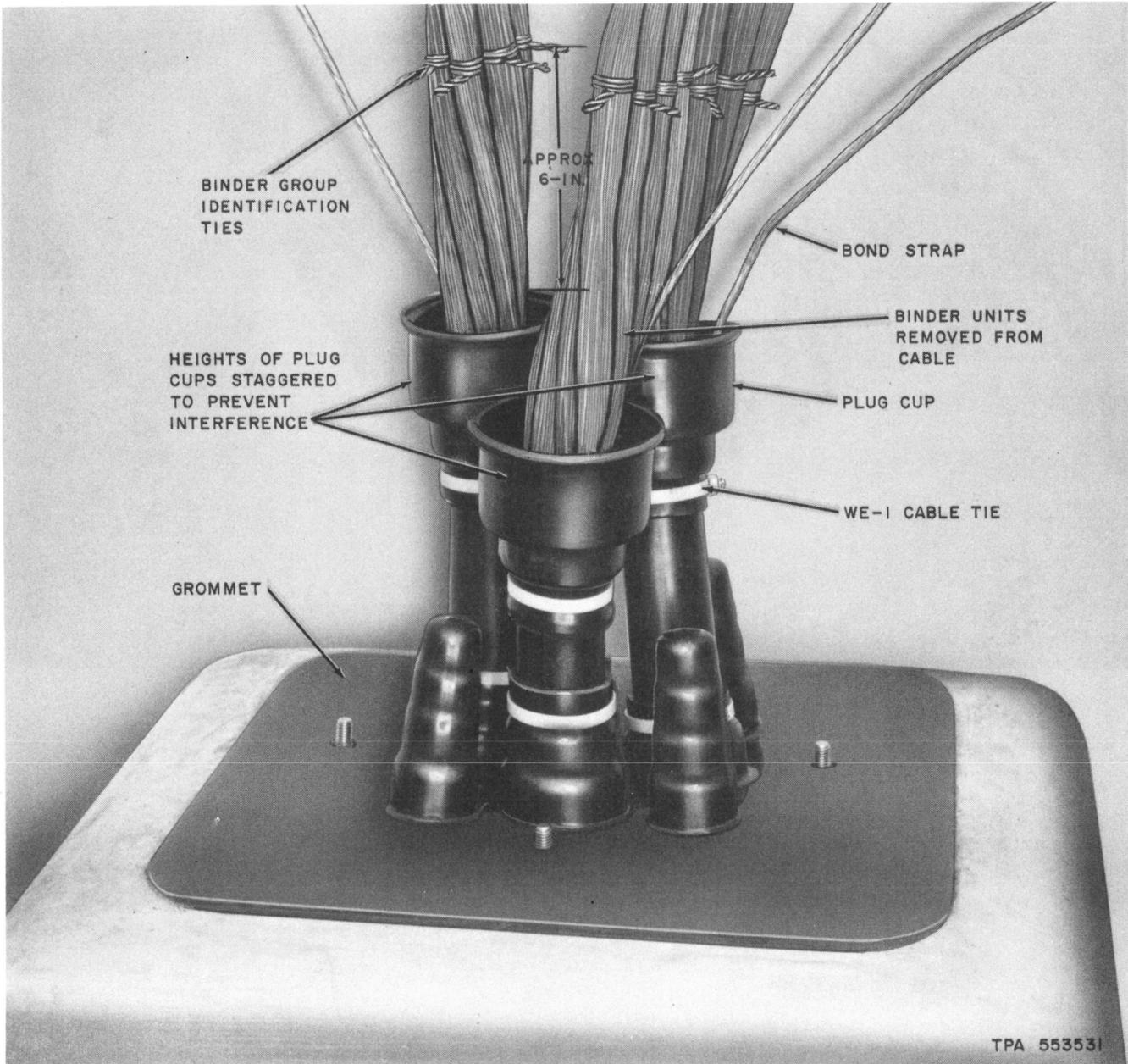


Fig. 11—Cables Prepared for Plugging

6. PLACING OF WIRING BLOCK FRAME**6.01** Disassemble interface as follows.

- (a) Open doors of interface.
- (b) Remove and retain eight screws from underside of top of interface.
- (c) Loosen four nuts securing housing to base.

(d) Lift housing from base and remove.

(e) Disassemble steel base and remove from frame.

6.02 Remove rear base bar and ground bar from frame, as shown in Fig. 12 to aid in positioning frame around cables. Place frame into position over bolts protruding from concrete foundation (Fig. 13). ***Assure that center panel is positioned in the predetermined direction.***



Fig. 12—Wiring Block Frame Prepared For Placing

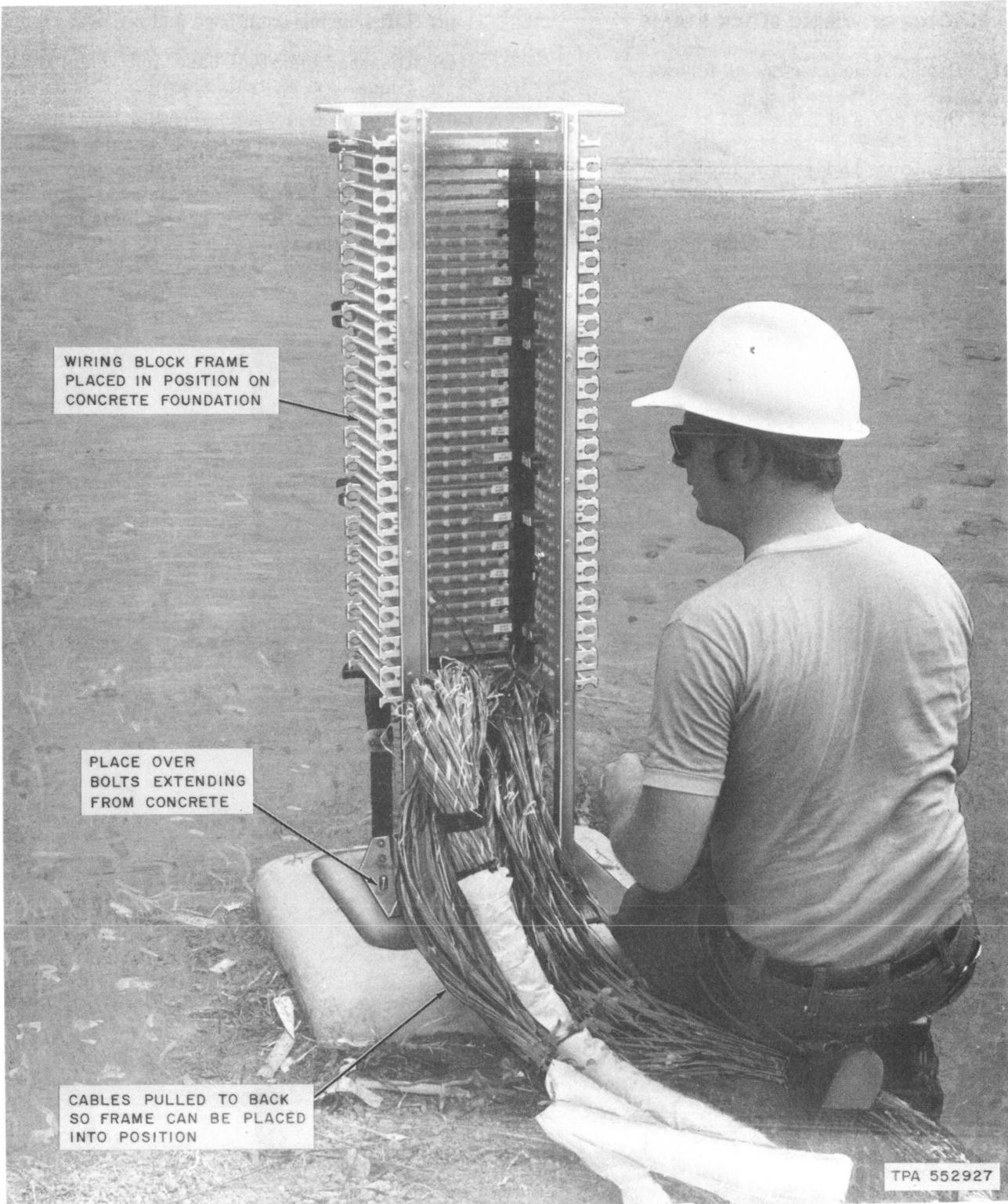


Fig. 13—Wiring Block Frame Placed in Position on Concrete Foundation

6.03 Install and secure base bar and ground bar (removed in 6.02) to frame. Attach bond straps from cables to ground bar (Fig. 14).

6.04 Install steel base around bottom of frame as shown in Fig. 14. ***Orient the base so that the seams are located on the side with the distribution panel. Then bolt base halves together and secure frame assembly and a base assembly to concrete foundation using nuts and washers furnished with interface. Tighten securely.***

7. CABLE FORMING

7.01 It is necessary to assign a continuous PIC sheath count to ***all*** cables entering or leaving a serving area interface. This continuous PIC sheath count aids in pair identification and pair connection and is accomplished by assigning:

- (a) A consecutive pair count starting with pair one (1-600 or 1-900) to all of the feeder (***IN***) cable pairs regardless of the number of cable sheaths involved.

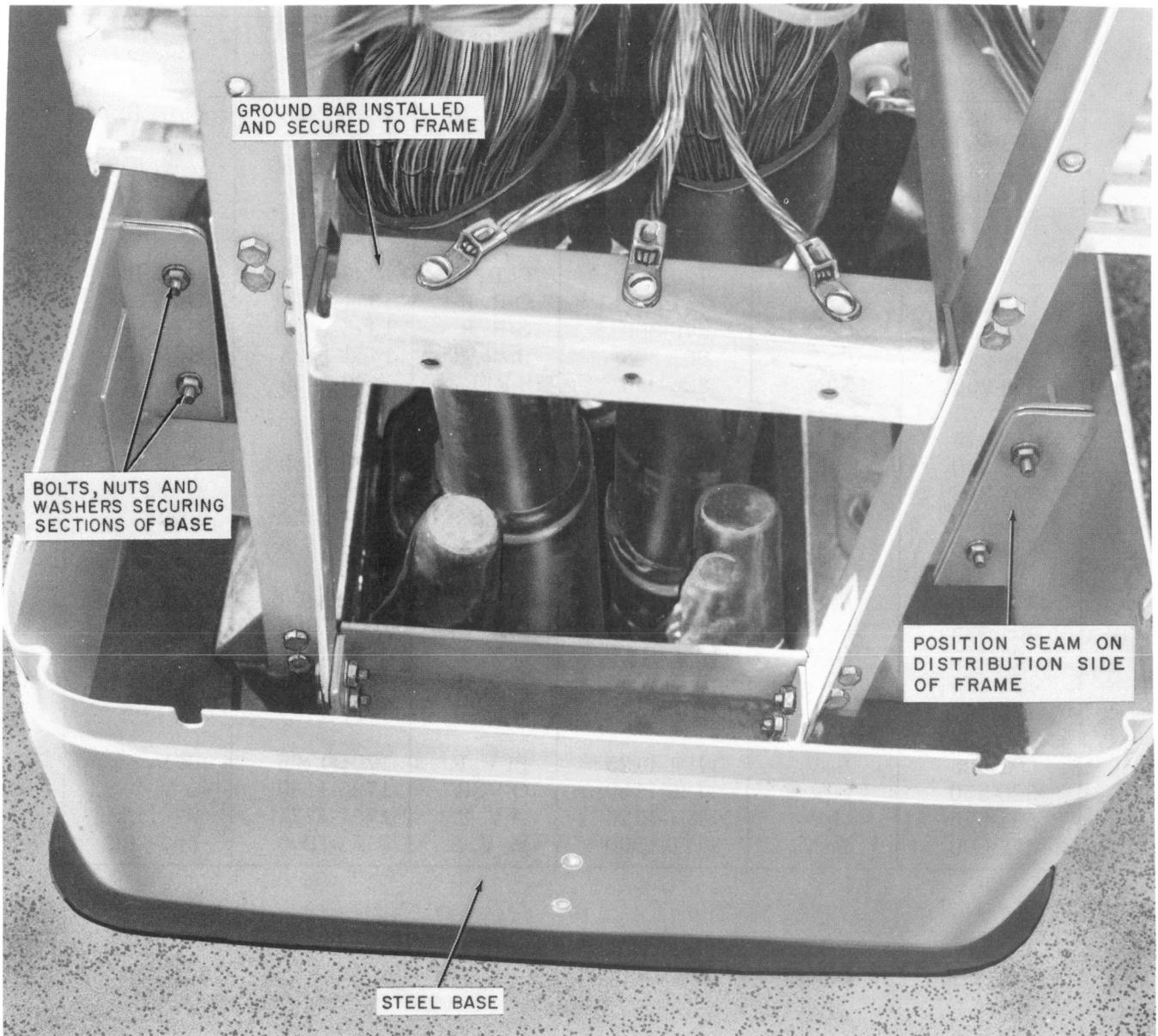


Fig. 14—Installed Base

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- (b) A consecutive pair count, starting with pair one (1-1200 or 1-1800) to all of the distribution (**OUT**) cable pairs regardless of the number of cable sheaths involved.
- (c) Binder groups of these cables will also be continuous to correspond to designations marked adjacent to the wiring slot on the wiring

block. By this technique each interface will appear to have only one feeder (**IN**) cable and one distribution (**OUT**) cable.

- (d) Table C lists the continuous PIC sheath count and binder group color code for 1800 pairs.

TABLE C
CONTINUOUS PIC SHEATH COUNT AND BINDER GROUP COLOR

CONTINUOUS PIC SHEATH COUNT	BINDER GROUP COLOR	CONTINUOUS PIC SHEATH COUNT	BINDER GROUP COLOR	CONTINUOUS PIC SHEATH COUNT	BINDER GROUP COLOR
1-25	Bl-W	601-625	Bl-W, R	1201-1225	Bl-W, Bk
26-50	O-W	626-650	O-W, R	1226-1250	O-W, Bk
51-75	G-W	651-675	G-W, R	1251-1275	G-W, Bk
76-100	Br-W	676-700	Br-W, R	1276-1300	Br-W, Bk
101-125	S-W	701-725	S-W, R	1301-1325	S-W, Bk
126-150	Bl-R	726-750	Bl-R, R	1326-1350	Bl-R, Bk
151-175	O-R	751-775	O-R, R	1351-1375	O-R, Bk
176-200	G-R	776-800	G-R, R	1376-1400	G-R, Bk
201-225	Br-R	801-825	Br-R, R	1401-1425	Br-R, Bk
226-250	S-R	826-850	S-R, R	1426-1450	S-R, Bk
251-275	Bl-Bk	851-875	Bl-Bk, R	1451-1475	Bl-Bk, Bk
276-300	O-Bk	876-900	O-Bk, R	1476-1500	O-Bk, Bk
301-325	G-Bk	901-925	G-Bk, R	1501-1525	G-Bk, Bk
326-350	Br-Bk	926-950	Br-Bk, R	1526-1550	Br-Bk, Bk
351-375	S-Bk	951-975	S-Bk, R	1551-1575	S-Bk, Bk
376-400	Bl-Y	976-1000	Bl-Y, R	1576-1600	Bl-Y, Bk
401-425	O-Y	1001-1025	O-Y, R	1601-1625	O-Y, Bk
426-450	G-Y	1026-1050	G-Y, R	1626-1650	G-Y, Bk
451-475	Br-Y	1051-1075	Br-Y, R	1651-1675	Br-Y, Bk
476-500	S-Y	1076-1100	S-Y, R	1676-1700	S-Y, Bk
501-525	Bl-V	1101-1125	Bl-V, R	1701-1725	Bl-V, Bk
526-550	O-V	1126-1150	O-V, R	1726-1750	O-V, Bk
551-575	G-V	1151-1175	G-V, R	1751-1775	G-V, Bk
576-600	Br-V	1176-1200	Br-V, R	1776-1800	Br-V, Bk

7.02 Before continuing, it is advisable to become familiar with the various parts of the wiring block shown in Fig. 15.

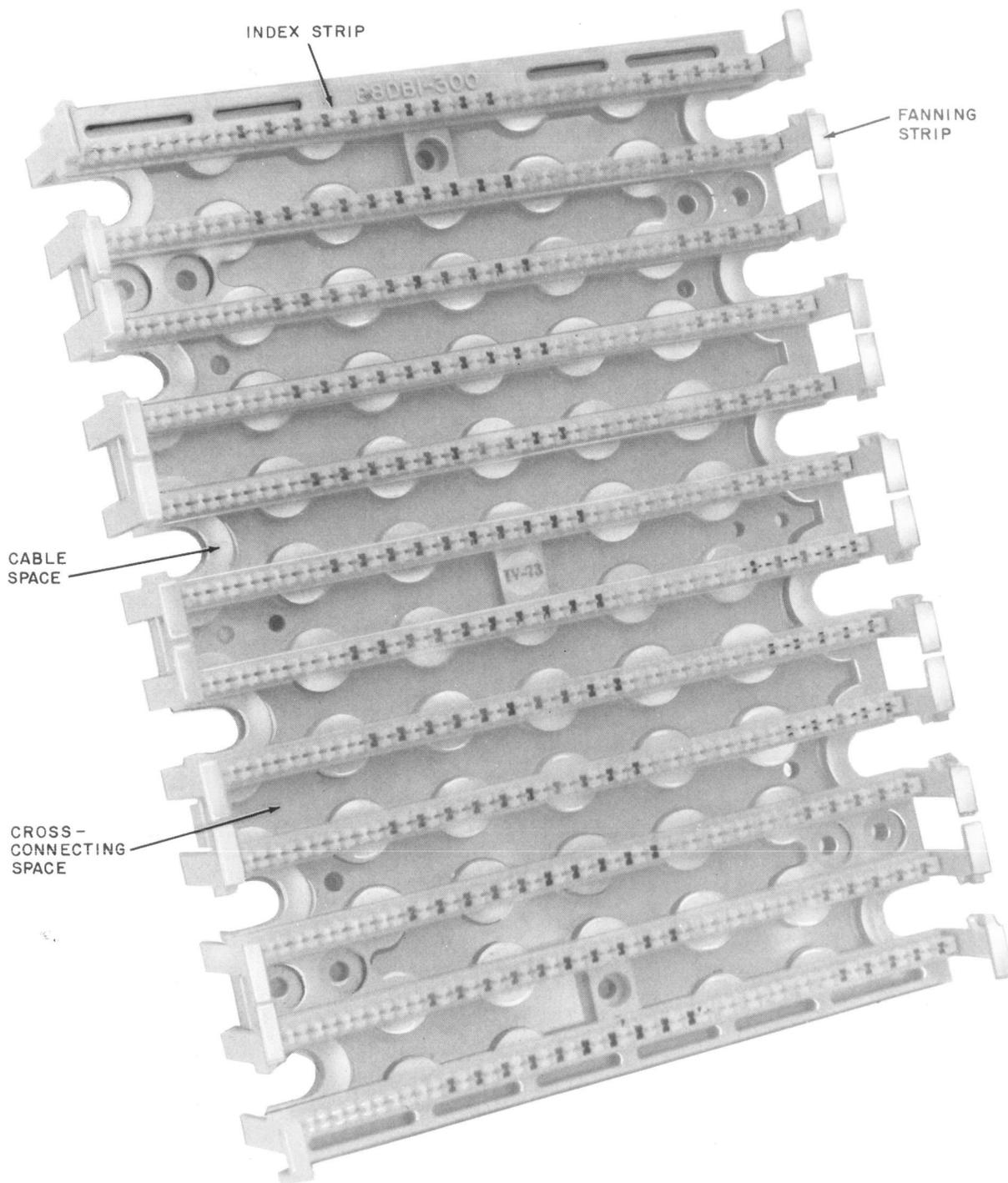


Fig. 15—Wiring Block

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7.03 Working from the back of the closure, feed the 25-pair binder groups of the feeder (*IN*) cable through the designated cable slots provided

on the center panel as shown in Fig. 16, then form the cable as shown, leaving the appropriate amount of slack.

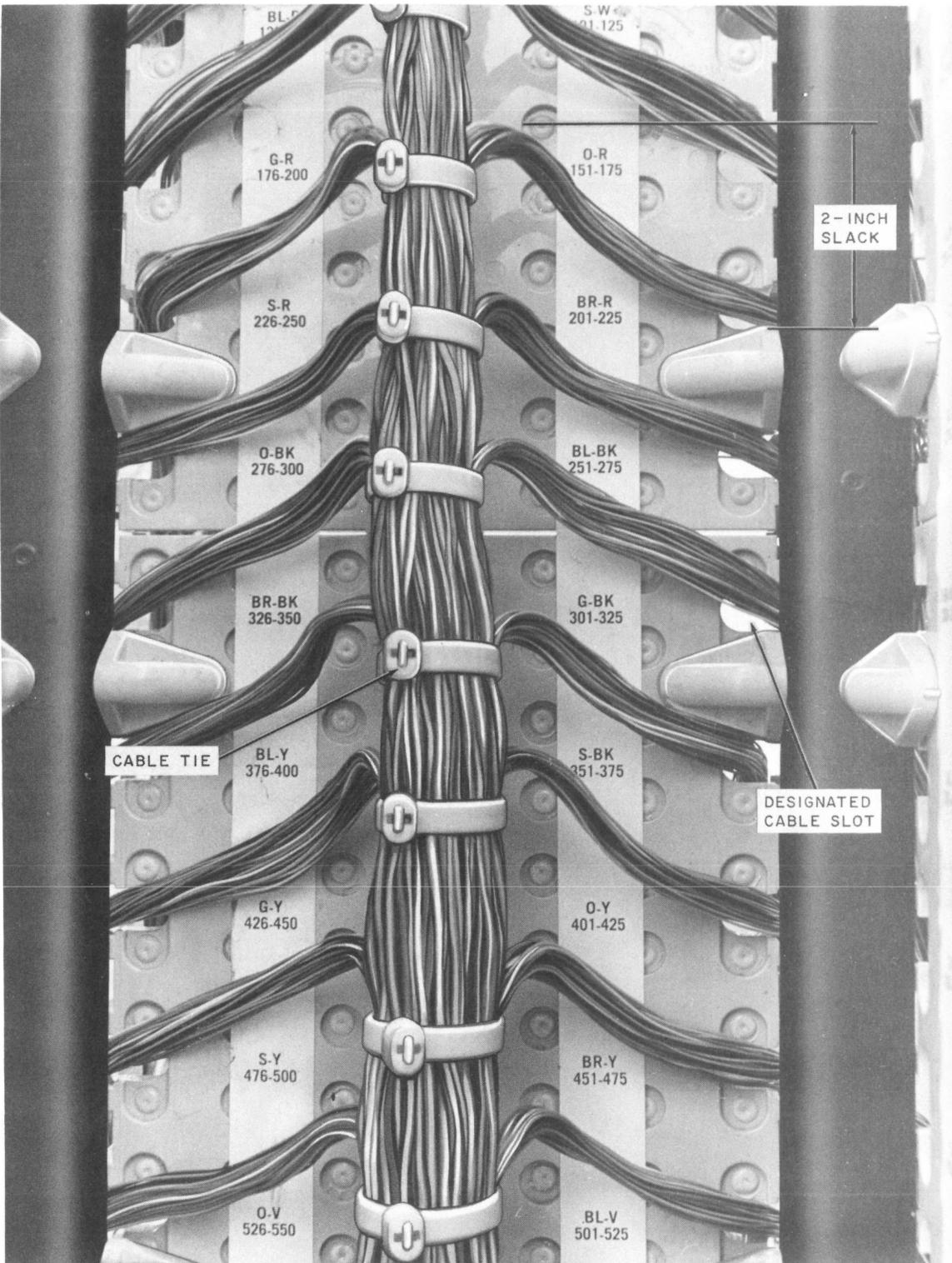


Fig. 16—25-Pair Binder Groups Fed Through Designated Cable Slots

7.04 Repeat Step 7.03 for each distribution (*OUT*) cable. The blue-white binder group of first distribution (*OUT*) cable is fed through slot No. 1 of the wiring block on the left panel as viewed from the front of the connector. When all slots in the left-hand panel (*OUT*) have been used continue placing binder groups starting with slot one of the wiring block on right-hand panel (*OUT*). The pair count will be continuous from one distribution panel to another.

8. PLACING CONDUCTORS IN INDEX STRIP OF WIRING BLOCK

8.01 Place the cable conductors into the index strip on the wiring block in order as shown in Fig. 17 starting with the blue-white pair of the blue-white binder group into index strip No. 1 at the upper left. The high spot on the index strip splits the pair.

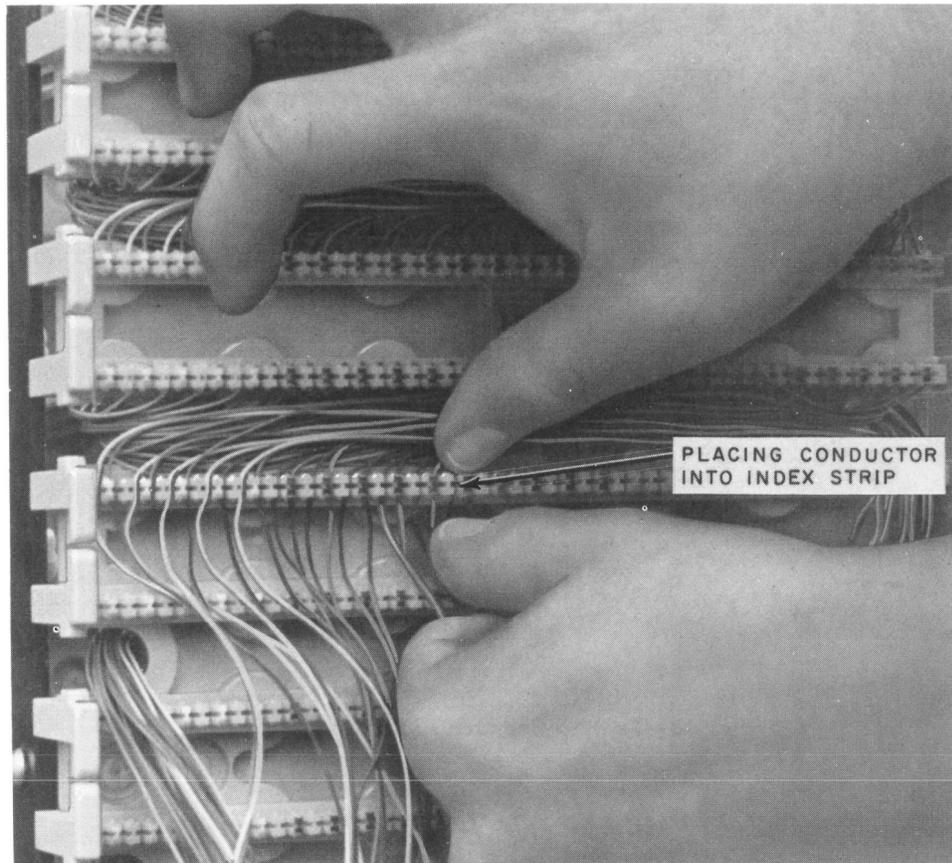


Fig. 17—Placing Cable Conductor Into Index Strip

8.02 Using the 5-pair insertion tool, seat the conductors *firmly* in the bottom of the

index strip (Fig. 18) to prevent damaging of conductors when placing connecting block.

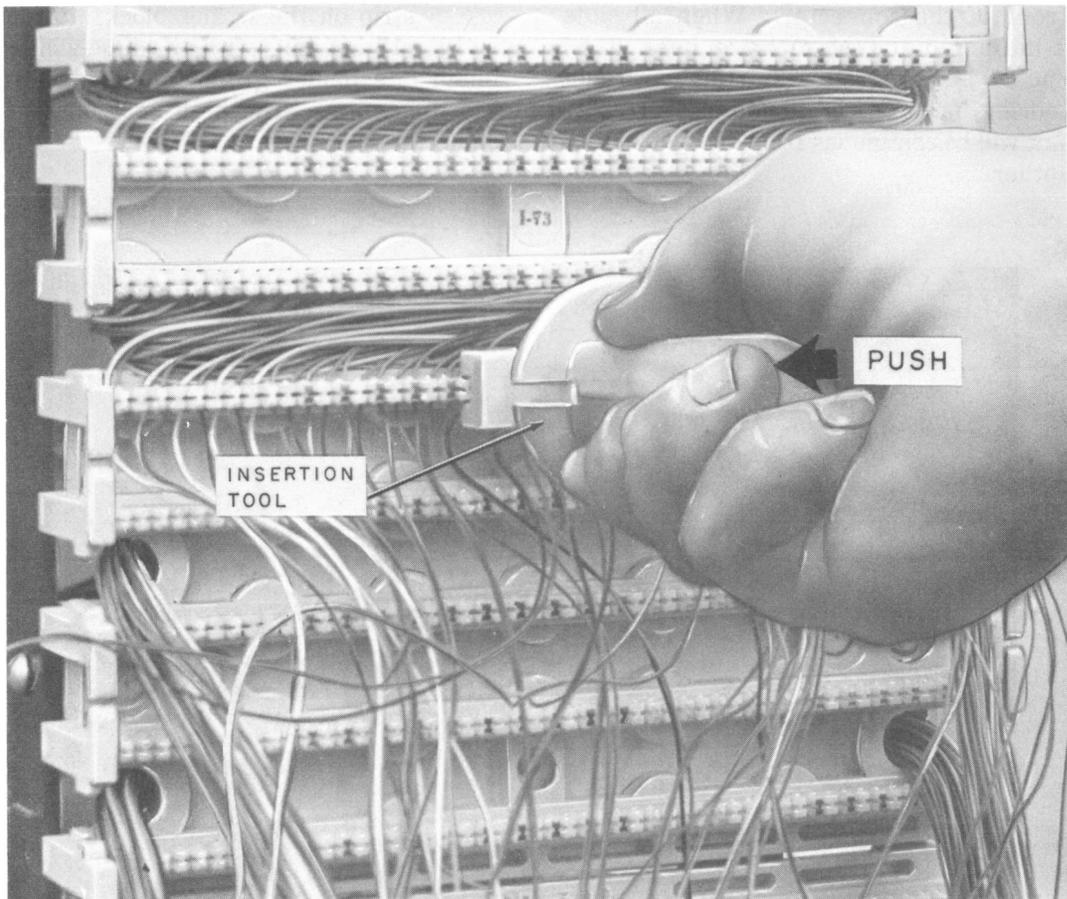


Fig. 18—Seating Conductor Into Index Strip

8.03 Dress the cable conductors in the wiring slot of the wiring block, then using the 5-pair cutting tool, cut the conductors at the edge of the index strip (Fig. 19). ***Exercise care to prevent cutting wrong side.*** After cutting and removing the conductors, ***check the index strip to assure that no short pieces of the cut conductors got wedged in the wiring slots thus preventing a***

solid connection when the connecting blocks are seated.

8.04 Repeat Steps 8.01, 8.02, and 8.03 for each 25-pair binder group. ***Avoid movement of cables after the conductors have been seated and cut to prevent the conductors from being pulled out of the index strip prior to placing the waterproof adapter.***

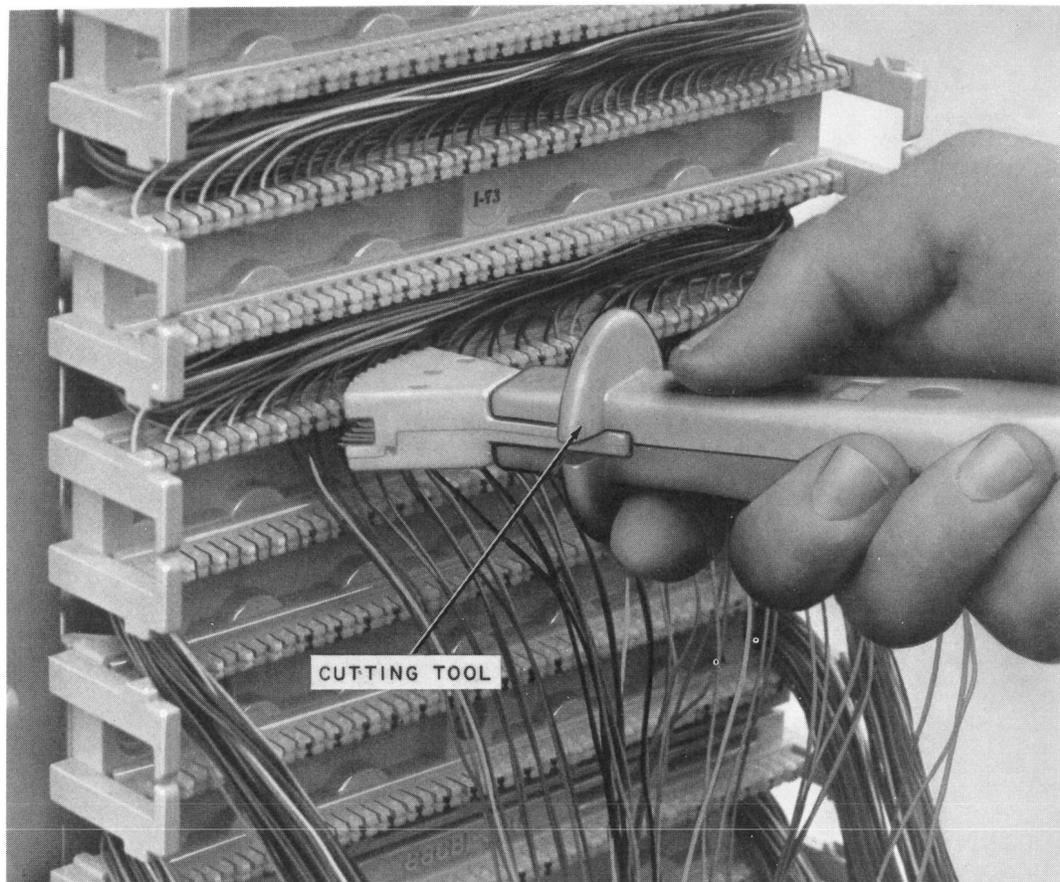


Fig. 19—Cutting Conductors

9. PLACING 288A1-25 WATERPROOF ADAPTER

9.01 Position the waterproof adapter *so the long side of the adapter will cover the conductor ends*, then place the open end of the adapter over the index strip (Fig. 20).

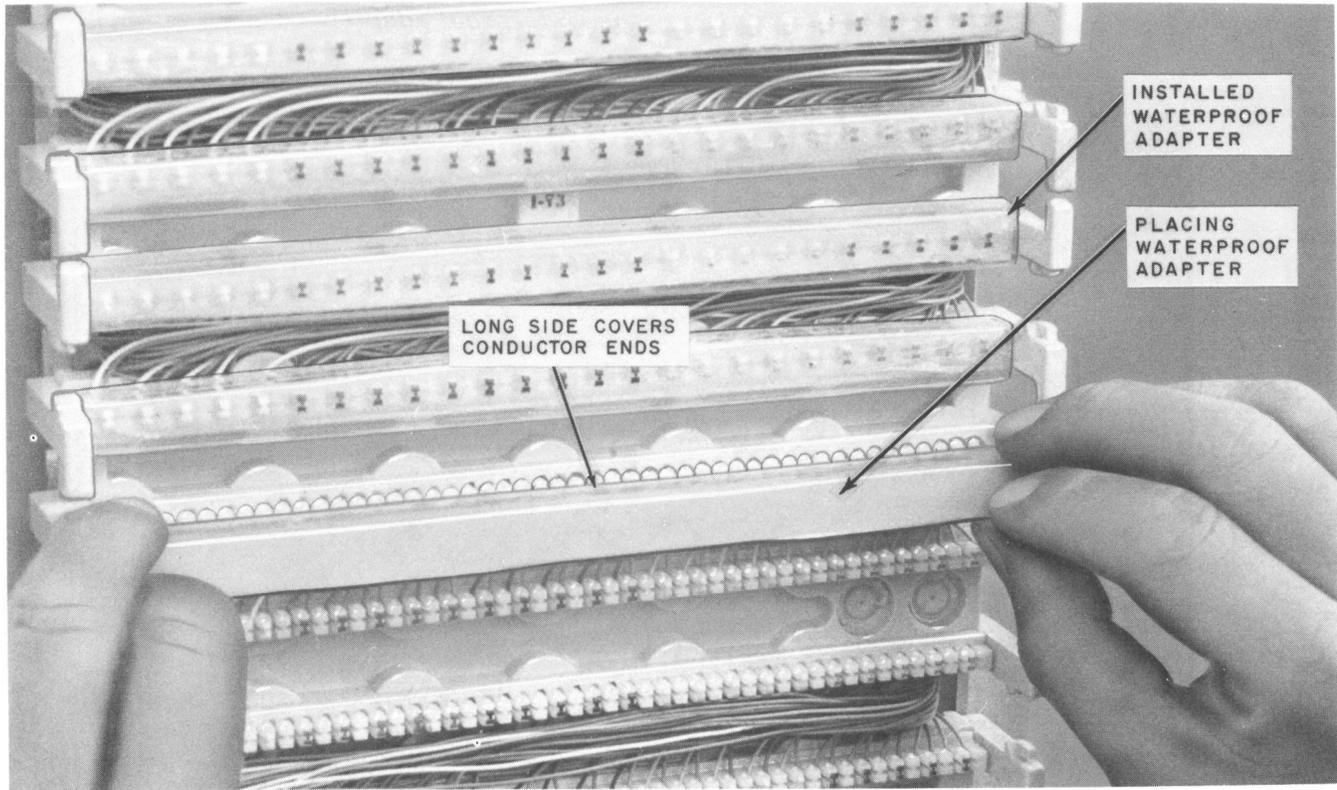


Fig. 20—Placing Waterproof Adapter

9.02 Seat the adapter over the index strip, then rub thumb across tape as shown in Fig. 21 to assure grease fills all voids.

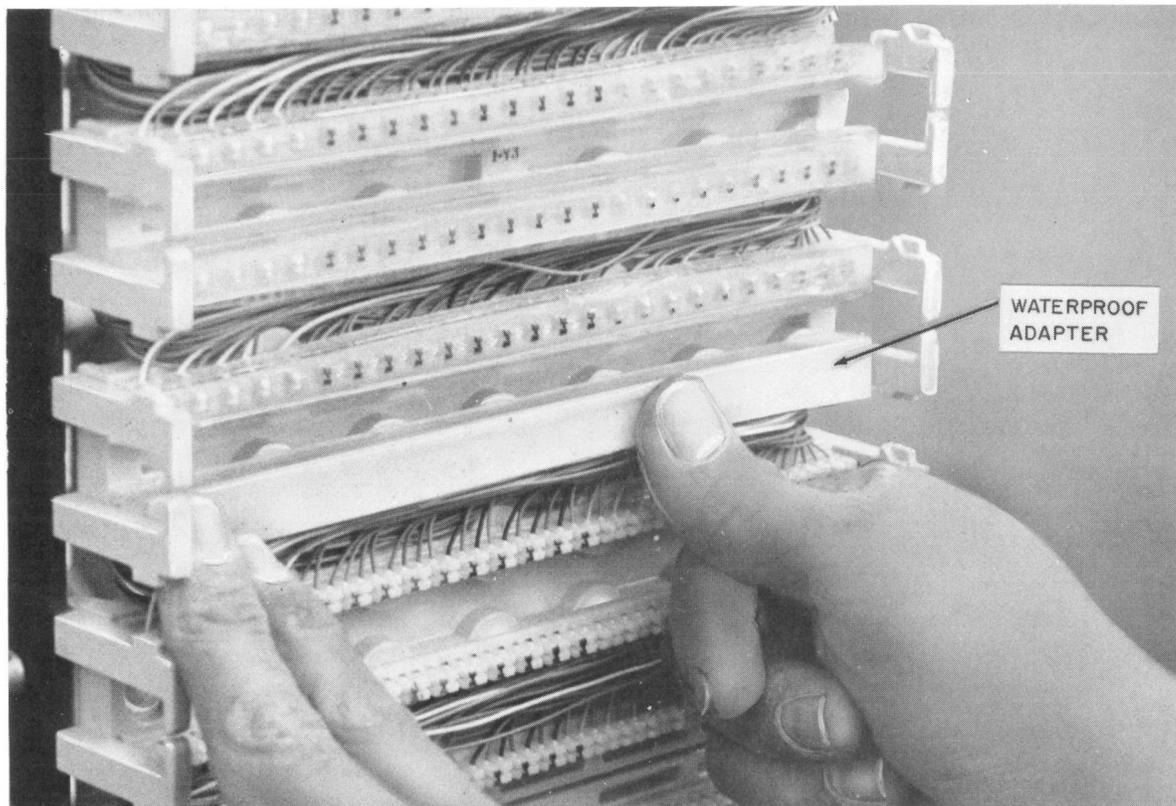


Fig. 21—Seating Waterproof Adapter

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9.03 Remove tape as shown in Fig. 22.

9.04 Repeat Steps 9.01, 9.02, and 9.03 for all binder groups.

10. PLACING 88-TYPE CONNECTING BLOCK ON INDEX STRIP

10.01 The 88-type connecting block is a two color block to aid in identification of 5-pair groups. The blocks should be installed starting with white side up at extreme left and alternating colors for the remainder of the strip.

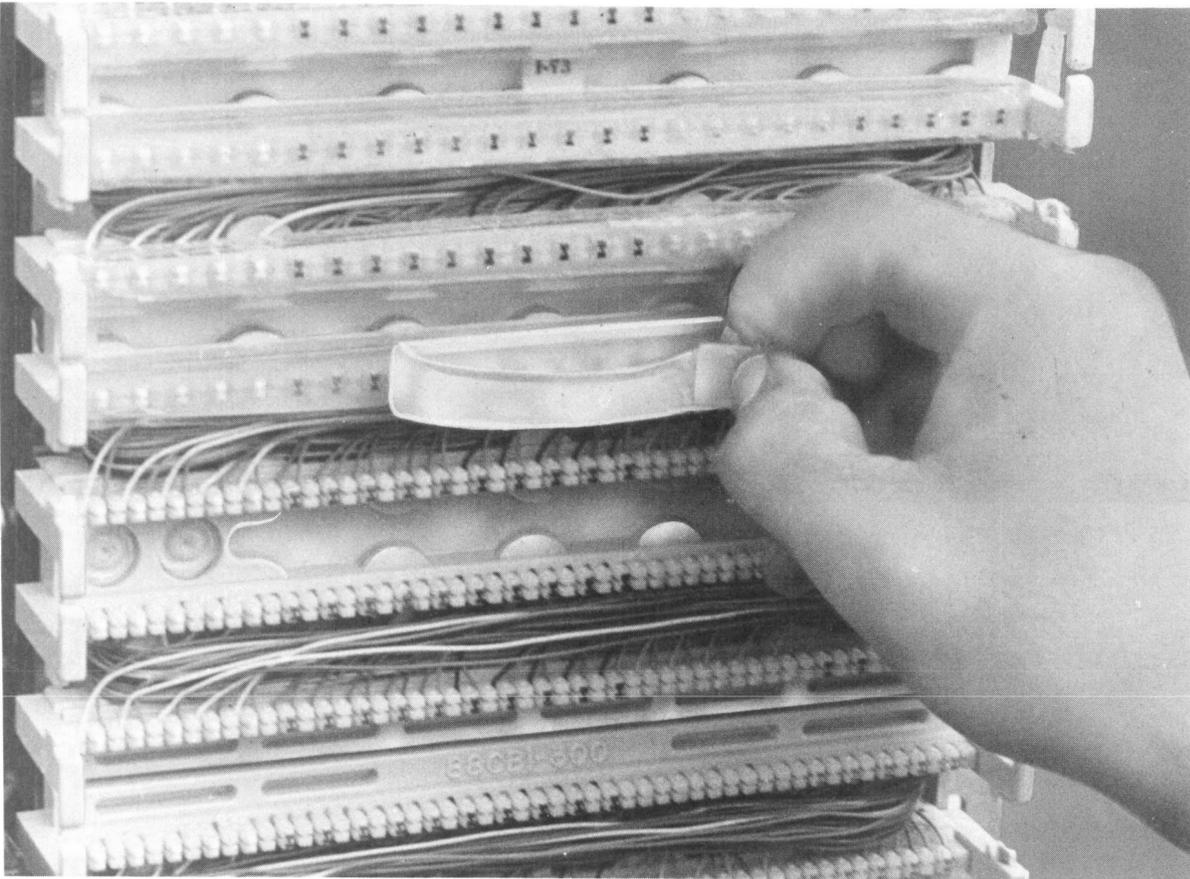


Fig. 22—Removing Tape From Adapter

10.02 Install five connecting blocks on each index strip as shown in Fig. 23. Then using 5-pair insertion tool, seat the blocks on the index strip (Fig. 24).

IMPORTANT: *Hold tool perpendicular to wiring block. Be sure terminals of*

connecting block are aligned with slots in index strip before impacting with hand. This procedure prevents damage to conductors and connecting blocks.

10.03 Repeat steps 10.01 and 10.02 for all binder groups on both the front and side panels.

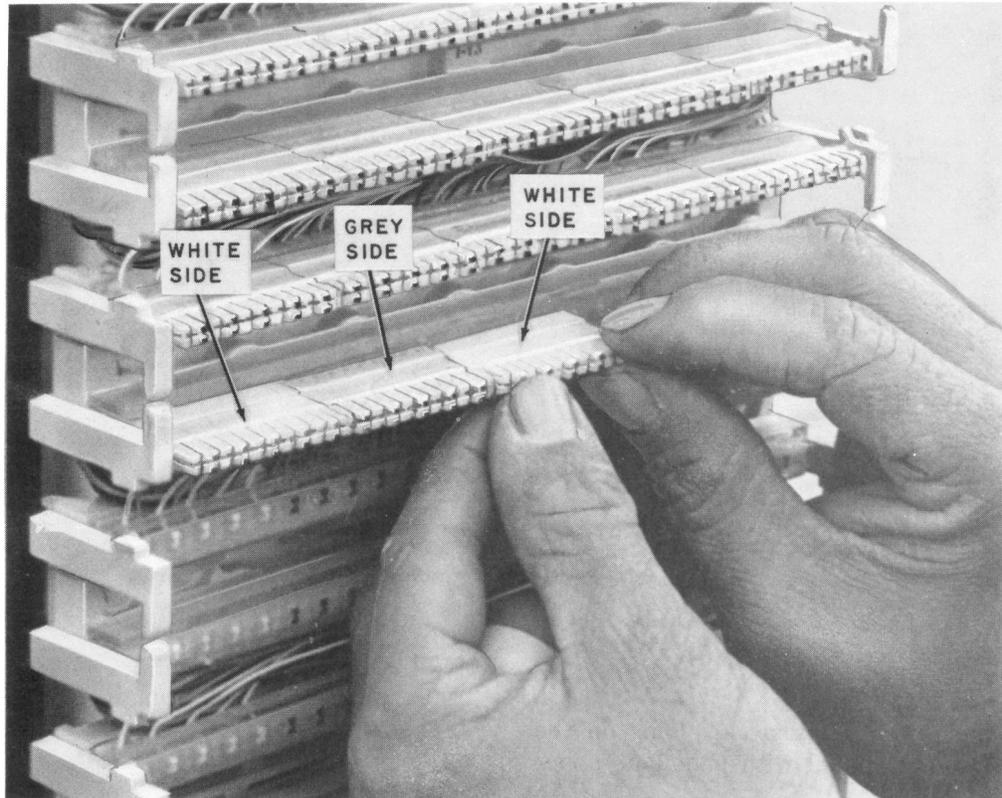


Fig. 23—Placing Connecting Block on Index Strip

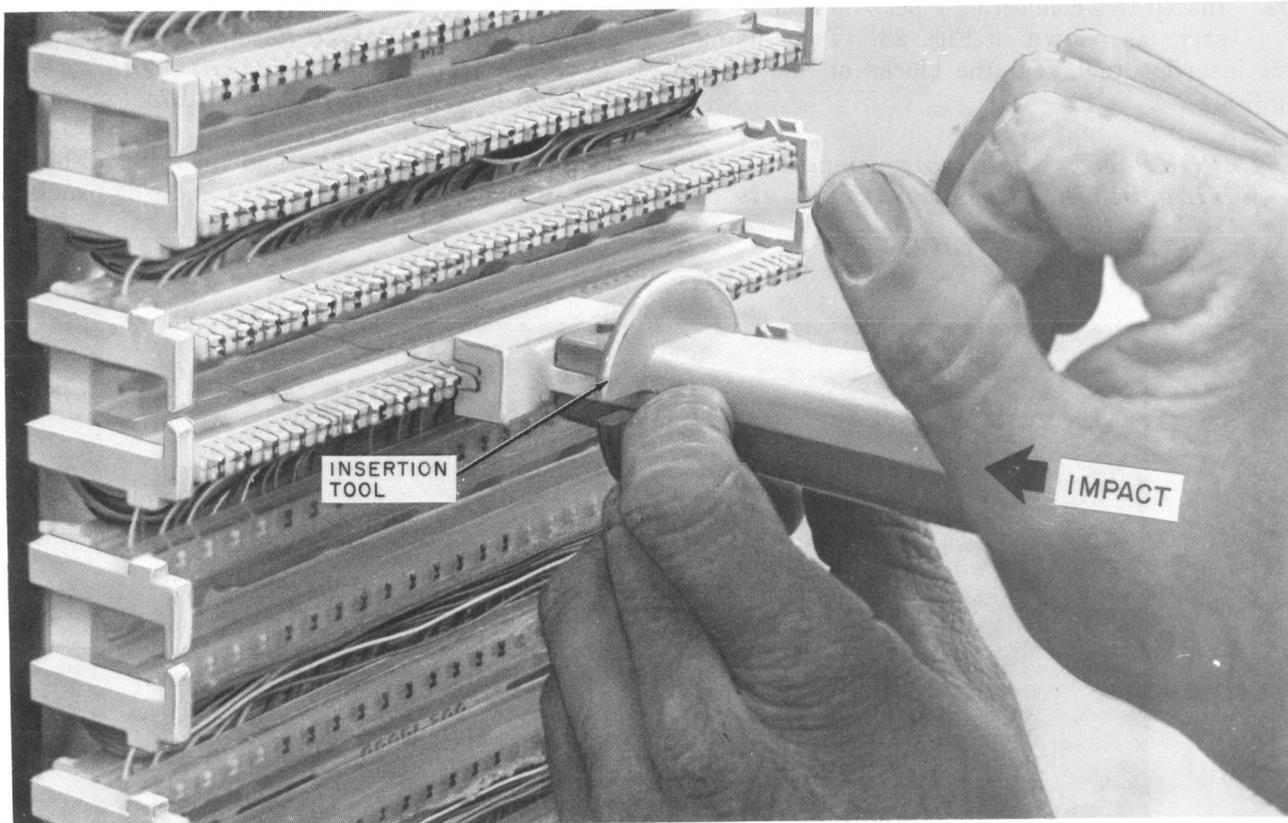


Fig. 24—Seating Connecting Block

11. MARKING

11.01 Snap the green designation strips on the feeder (center) panel with pair 1 at upper left (Fig. 25 and 26).

11.02 Snap the blue designation strips on the distribution (side) panels with pair 1 at upper left of left panel (Fig. 26).

12. INSTALLING WATERPROOF CAPS

12.01 Waterproof caps are placed over the jumper side of the connector for protection.

12.02 Place these caps as follows.

- (a) Cap all feeder (*IN*) pairs, whether jumpers are in place or not, because the feeder cable is exposed to corrosion effects of 48 volt battery potential.

- (b) Cap distribution (*OUT*) pair *only* when jumpers are run from the feeder to distribution panels.

- (c) Caps are not reusable, discard when removed and replace with new cap.

- (d) Store a supply of new caps in storage boxes located in base of interface.

13. ENCAPSULATING OF CABLES

13.01 Mix the B or C encapsulant as outlined on can and pour into plug cup to provide moisture dam.

14. INSTALLING CLOSURE

14.01 Install the closure over the frame (Fig. 27) and secure at the top with eight bolts. Replace the test cord brackets when installing the bolts above the distribution panel.

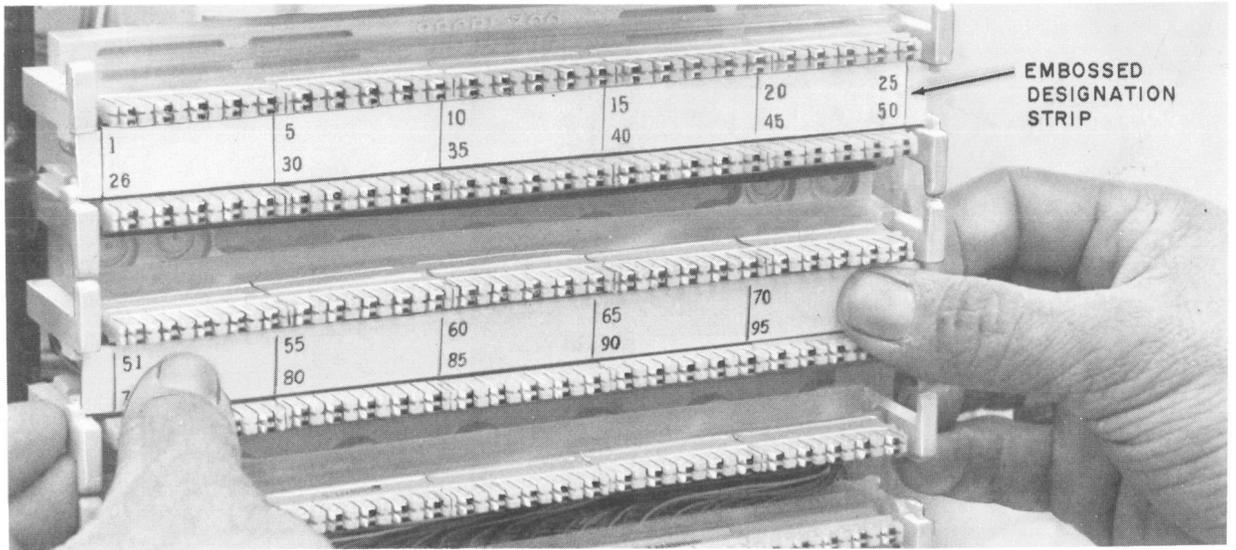


Fig. 25—Placing Designation Strip

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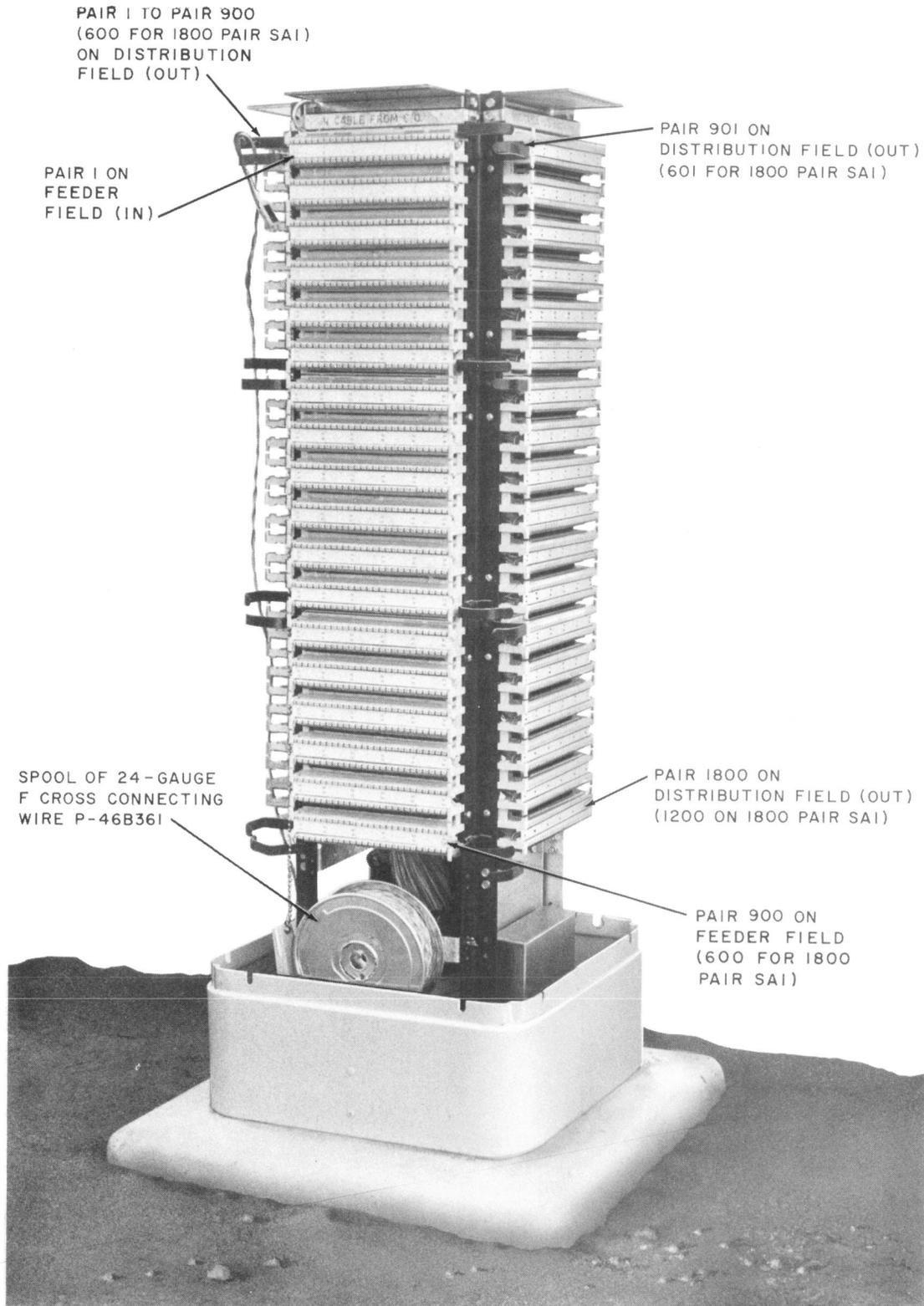


Fig. 26—Marked Interface

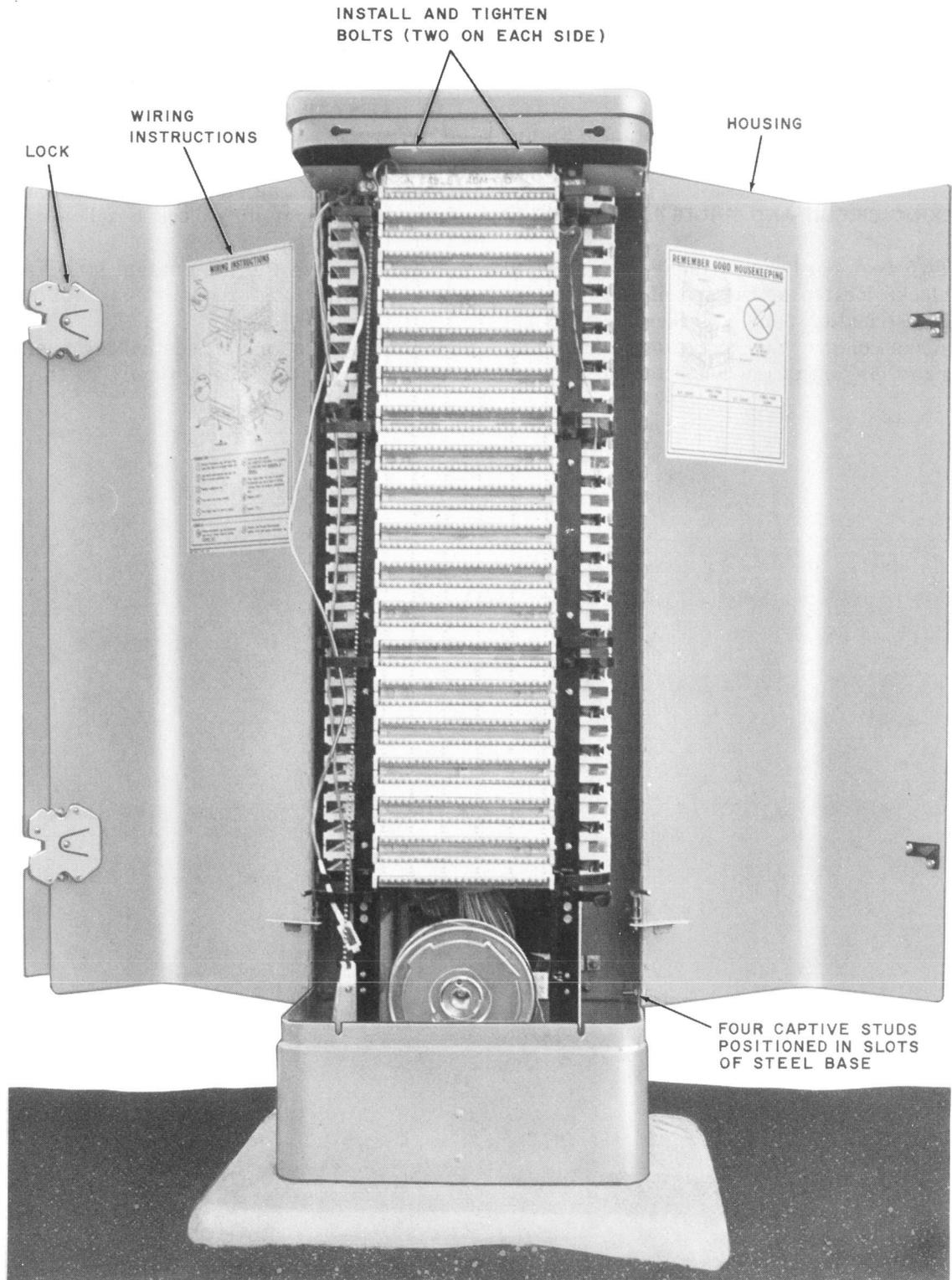


Fig. 27—Installed Housing

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14.02 Close and latch the front doors, then through the rear door, tighten the two rear nuts securing the housing to the base, then tighten the two side nuts.

14.03 Lock housing in closed position. Figure 28 illustrates a completed installation.

15. TALKING CIRCUIT AND SINGLE PAIR TEST CORD

15.01 Two test cords are attached to terminal blocks located at the top of the interface over each distribution panel. These test cords are used to make contact with connector terminals by attaching to the front of the connector block.

15.02 Two test cords provide the convenience of establishing a talk circuit with one test cord while using the other for test purposes.

16. REPLACING CONNECTING BLOCK

16.01 If it is necessary to replace a damaged connecting block or repair a cable conductor remove the connecting block as follows.

- (a) Remove the designation strip from wiring block.
- (b) Using a pair of side cutting pliers, grip the connecting block firmly in the center as

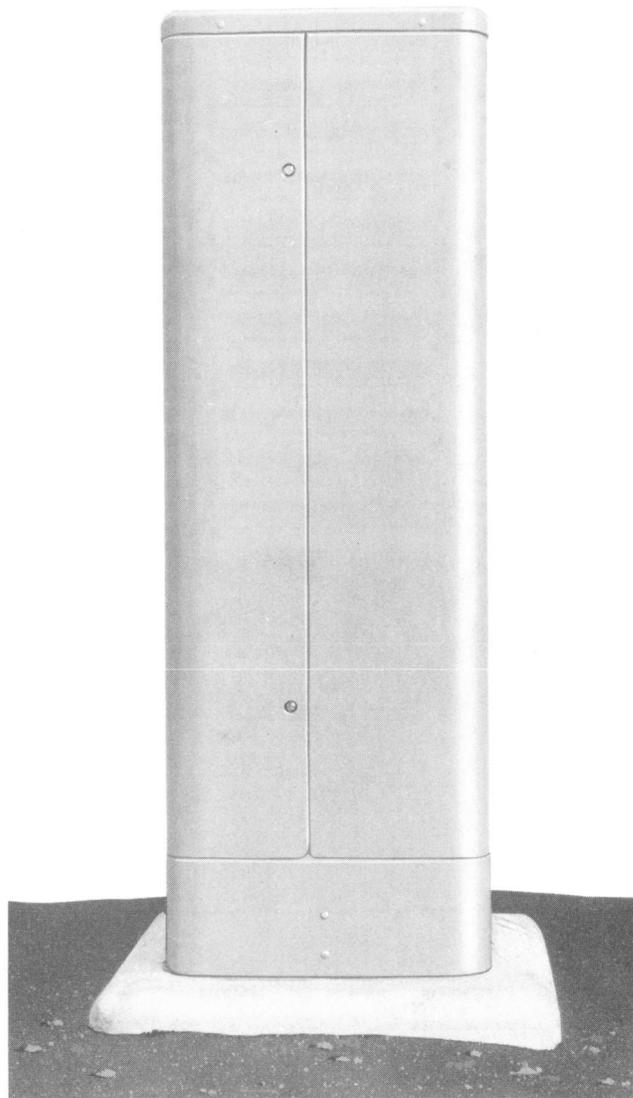


Fig. 28—Completed Installation

shown in Fig. 29, then gently pull with a slight up and down motion to release the connecting block from the index strip.

- 16.02 Replace connecting block as outlined in Part 10.

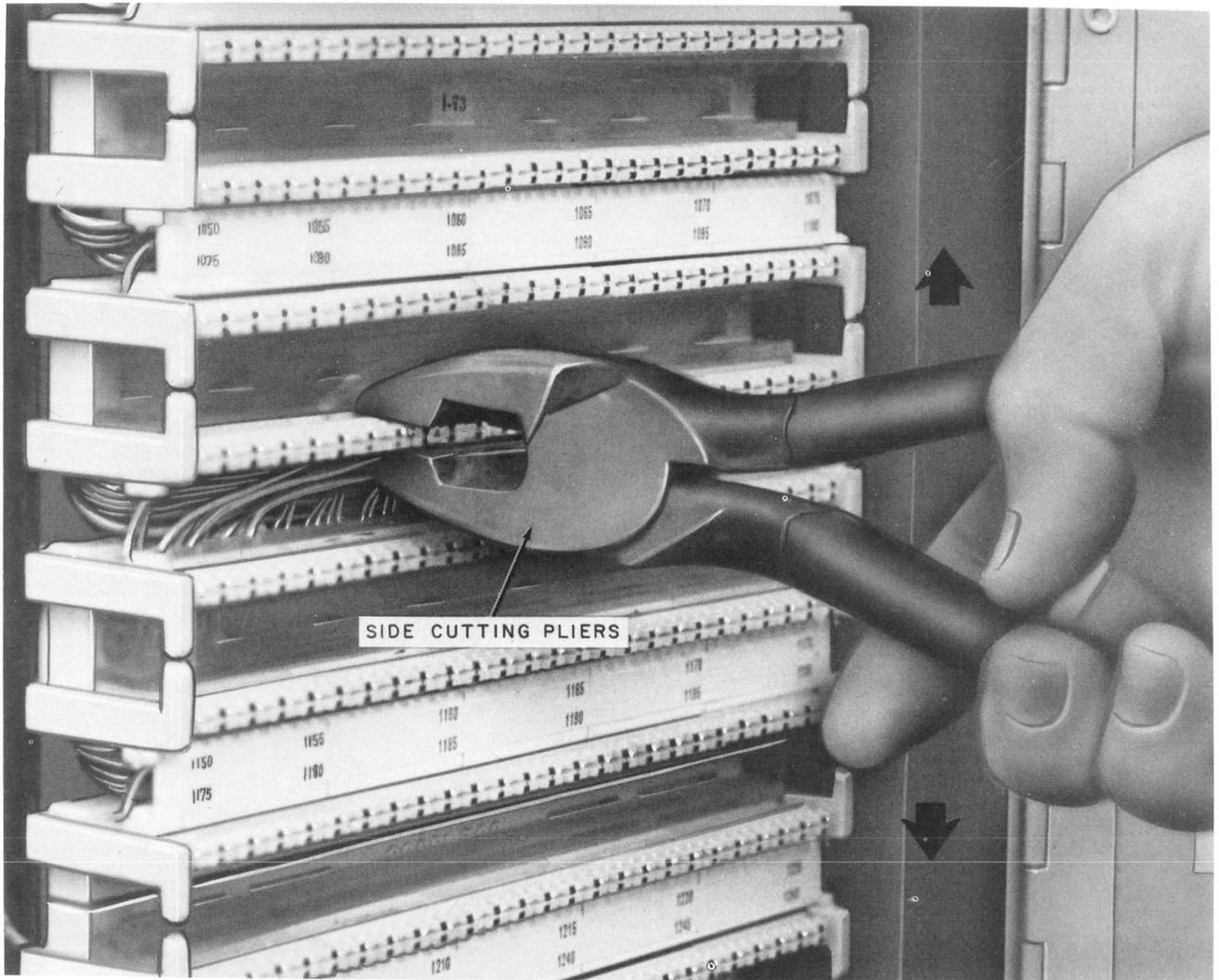


Fig. 29—Removing Connecting Block