

309-TYPE CONNECTORS

DESCRIPTION, USE, INSTALLATION, AND REPAIR PROCEDURES

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1. GENERAL

1.01 This practice covers the description, use, installation, and repair procedures for 309-type connectors.

1.02 This practice is issued as part of a general restructuring, updating, and combining of the 201-series of practices. The following practices are combined with this practice:

- 201-208-105
- 201-208-805

1.03 The 309-type connectors are used on the ED-97754-74 LPCDF (Low Profile Conventional Distributing Frame), the ED-6C331-70 single-sided low profile distributing frame, and the ED-97755-72 low profile double-sided protector frame for use with COSMIC® subscriber main distributing frame systems. The 309-type connector may also be used in the Sliding Drawer Assembly Protector Frame.

1.04 The low profile conventional distributing frame ED-97754-74 has been improved to complement the 309-type connector. It includes dual distributing rings and a guardrail with convenient ac power outlets and designation information.

1.05 Although the 309-type connector is intended mainly for use on new installations, it can be used on existing conventional frame verticals equipped with dual distributing rings. Minor modifications may be required to place 309-type connectors on existing frames.

1.06 The miniature test/talk system is available. It can be tailored to fit the needs of the individual central office, and mounts in the frame vertical space designed for one 309-type connector. The 89-type connecting blocks can also be mounted vertically with 309-type connectors.

1.07 The 309-type connectors, with protector units, provide features for voltage protection, current protection, testing, identification of special circuits, and disconnection of the outside cable pair from the central office equipment.

1.08 The purpose of central office protection is to ensure the safety of telephone company personnel and to reduce the possibility and extent of equipment damage in the event that foreign potential contacts the outside plant.

2. DESCRIPTION

2.01 The 200-pair, 309-type connector (Figure 1, 2, and Table A) measures 11-1/8 inches wide, 11 inches high, and extends 3-7/8 inches outward from the frame vertical. This front facing connector consists of two separate 100-pair units, each mounted on adjacent frame verticals abutted in mirror image. Each 100-pair front panel contains gold-plated terminals for a 5 by 20 array of 4C protector units. Nine 200-pair connectors can be mounted on one bivertical bay of an 8-foot 10-inch high ED-97754-74 LPCDF. This is equivalent to 900 pairs per vertical on a conventional arrangement.

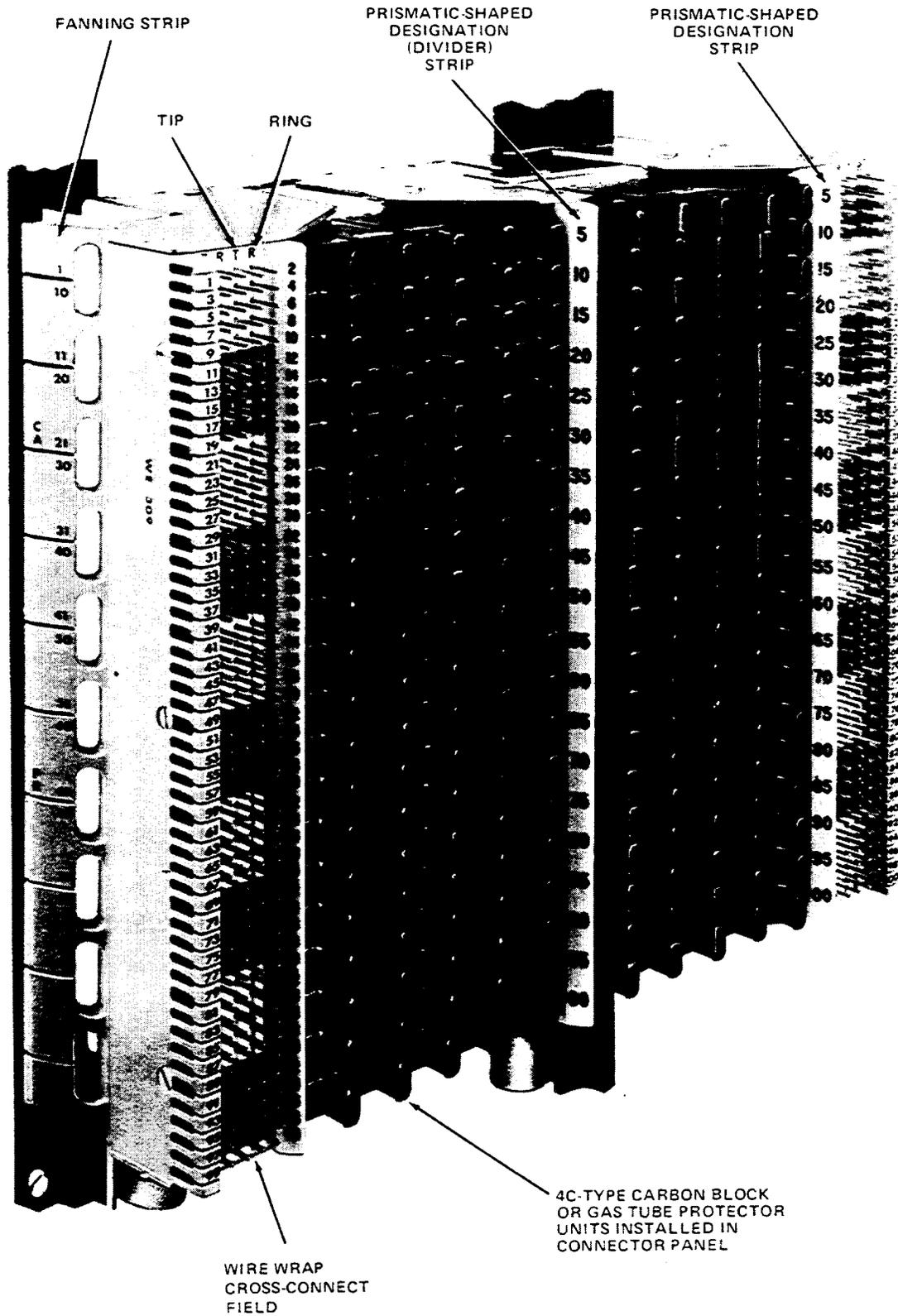


Figure 1—309-Type Connector — Left Side/Front View

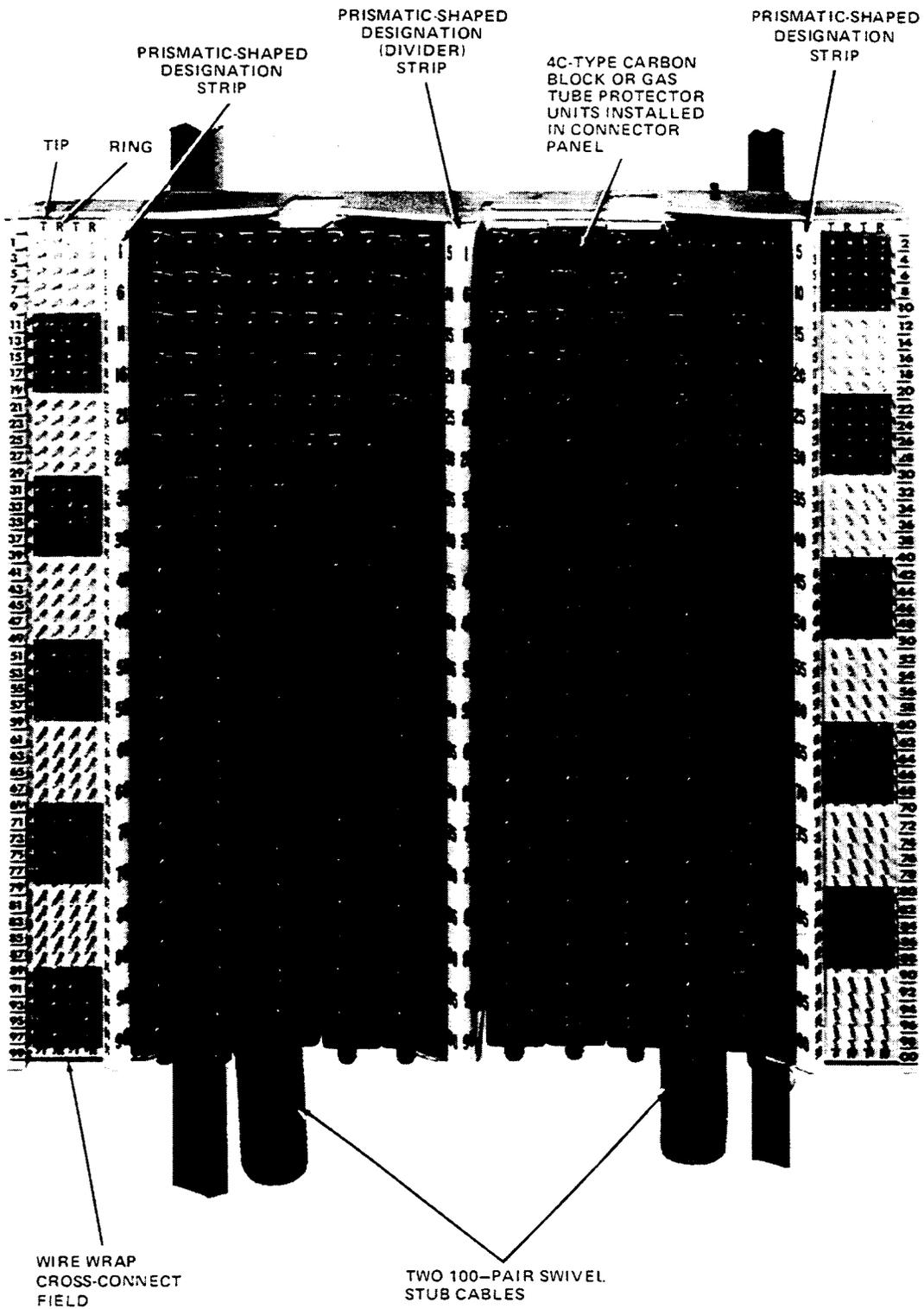


Figure 2—309-Type Connector — Front View

TABLE A
309-TYPE CONNECTORS

Application	Cross-Connect Terminal Type	Stub Cable			Item Code	Comcode		
		Wire Gauge	Length (Feet)	Cabling Direction				
Outside Plant Facility Pairs	Wire Wrap	24	30	Up/Down (Swivel)	309A1-200-30	103779799		
			50		309A1-200-50	103779807		
			80		309A1-200-80	103779815		
			100		309A1-200-100	103779823		
			150		309A1-200-150	103779831		
			200		309A1-200-200	103779849		
		22	30		309B1-200-30	103779856		
			50		309B1-200-50	103779864		
			80		309B1-200-80	103779872		
			100		309B1-200-100	103779880		
			150		309B1-200-150	103779898		
			200		309B1-200-200	103779906		
		Pair Gain Systems (Pseudo Connector for Derived Pairs)	No Stub			309E1-200	103670865	
			*			309G1-200	104185392	

* Connector equipped with four 710-type connectors for connection to 11CA- and 11DA-type stub cables.

2.02 Each 100-pair connector unit has a separate protector unit panel and a related cross-connect panel. The molded cross-connect panel incorporates an angled designation strip (Figure 1 and 2) that identifies the beginning or end of each row of protector units on one side and identifies the T and R cross-connect terminals on the other side. The cross-connect field is arranged in a blue and white checkerboard pattern of 10-pair groups. A separate blue plastic fanning strip is attached to the side of the cross-connect panel and contains additional identification of the T and R cross-connect terminals.

2.03 An angled designation strip divides the two 100-pair protector unit groups and provides additional identification of the protector units. The molded plastic protector unit panels are recessed, in relation to the cross-connect panels, so that the tops of the protector units, the cross-connect terminals, the

angled designation strips, and the fanning strips are all in the same vertical plane.

2.04 The 309-type connector does *not* have a test terminal field. The 4C-type protector units have test points (or holes) that provide access for testing outside plant conductors. The red 4C-type protector units for special service measures/special service protection (SSM/SSP) do not have test ports and should not be temporarily removed or replaced with regular protector units to facilitate multiple testing.

2.05 A 100-pair U test connector (AT-9007), is used for making multiple cable pair tests on the protected connector (with a full complement of 4C-protector units) or on the unprotected connector panel. (See AT&T 201-208-106.) A P2FL test cord is used to test a single protected pair. The 526A plug end of the cord is "piggyback" mounted onto a 4C-type protector unit.

2.06 The 309-type connector has two standard factory-connected, color-coded, 100-pair stub cables containing 22- or 24-gauge tinned-copper PVC (polyvinyl chloride) insulated conductors, a mylar tape core wrap, and a corrugated aluminum shield under an outer PVC sheath.

2.07 The stub cables are equipped with swivels enabling the stubs to be mounted in either an

up or down position. A stubless connector is also available.

2.08 The 309-type connectors are available in half-connector units to facilitate incremental additions and permit frame design flexibility. The half-connector units have all the basic features of the full 200-pair assemblies and should be ordered as detailed in Table B.

TABLE B									
309-TYPE CONNECTORS — HALF-CONNECTOR UNITS									
Application	Cross-Connect Terminal Type	Stub Cable			Item Code	Comcode			
		Wire Gauge	Length (Feet)	Cabling Direction					
Outside Plant Facility Pairs	Wire Wrap	24 Left Half	30	Up/Down (Swivel)	309A1L-100-30	105755441			
			50		309A1L-100-50	105762942			
			80		309A1L-100-80	105762983			
			100		309A1L-100-100	105763031			
			150		309A1L-100-150	105763148			
			200		309A1L-100-200	105763163			
		24 Right Half	30		309A1R-100-30	105755458			
			50		309A1R-100-50	105764260			
			80		309A1R-100-80	105764278			
			100		309A1R-100-100	105764286			
			150		309A1R-100-150	105764294			
			200		309A1R-100-200	105764302			
		22 Left Half	30		309B1L-100-30	105755466			
			50		309B1L-100-50	105764310			
			80		309B1L-100-80	105764328			
			100		309B1L-100-100	105764336			
			150		309B1L-100-150	105764344			
			200		309B1L-100-200	105764351			
		22 Right Half	30		309B1R-100-30	105755474			
			50		309B1R-100-50	105764369			
			80		309B1R-100-80	105764377			
			100		309B1R-100-100	105764385			
			150		309B1R-100-150	105764393			
			200		309B1R-100-200	105764401			
		Pair Gain Systems (Pseudo Connector for Derived Pairs)	Wire Wrap		No Stub — Left Half			309E1L-100-LS	105755482
					No Stub — Right Half			309E1R-100-LS	105755490
					No Stub — Left Half*			309G1L-100-710	105755508
					No Stub — Right Half*			309G1R-100-710	105755516

* Connectors equipped with two 710-type connectors for connection to 11CA- and 11DA-type stub cables.

BIVERTICAL ARRANGEMENT

2.09 The bivertical/309-type connector concept provides two features on conventional distributing frames.

(1) The associated outside plant stub cables and the equipment switchboard cables are compartmentalized behind the 309-type connectors.

(2) The alternating vertical bays between the 309-type connector arrays are dedicated solely for cross-connect wiring operations (Figure 3). This concept completely isolates the permanent and stationary storage of cable from the more frequent and "churning" frame activity of terminating cross-connections.

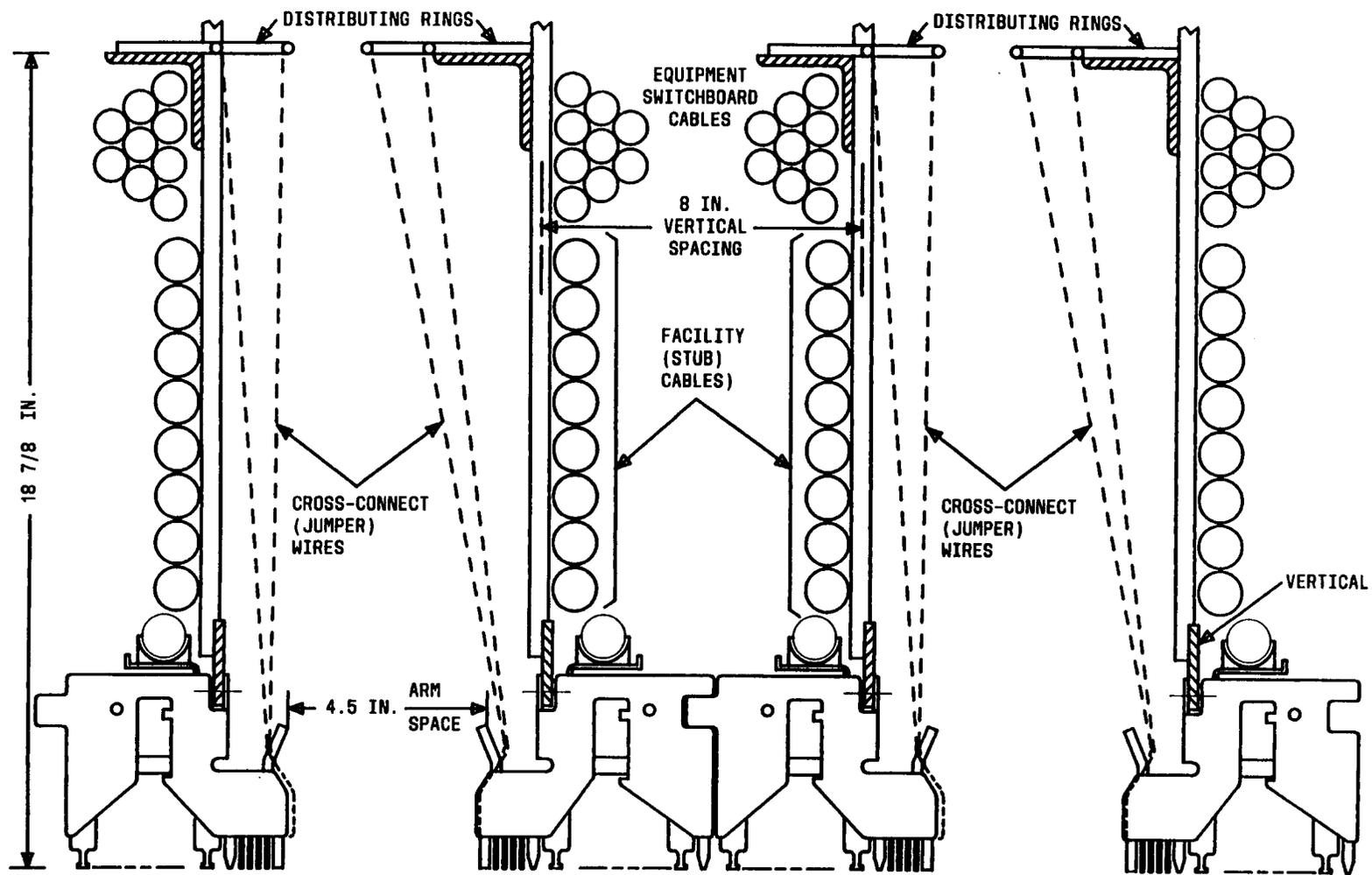


Figure 3—Plan View Looking Down on Frame

2.10 Another aspect resulting from the bivertical/309-type connector arrangement on the LPCDF (low-profile conventional distributing frame) or the LPDPF low profile double sided protector frame is the relocation of the designation board. The framework has been redesigned to include a combination guardrail/designation area (Figure 4). The area previously utilized for the designation board is therefore available for the 309-type connectors.

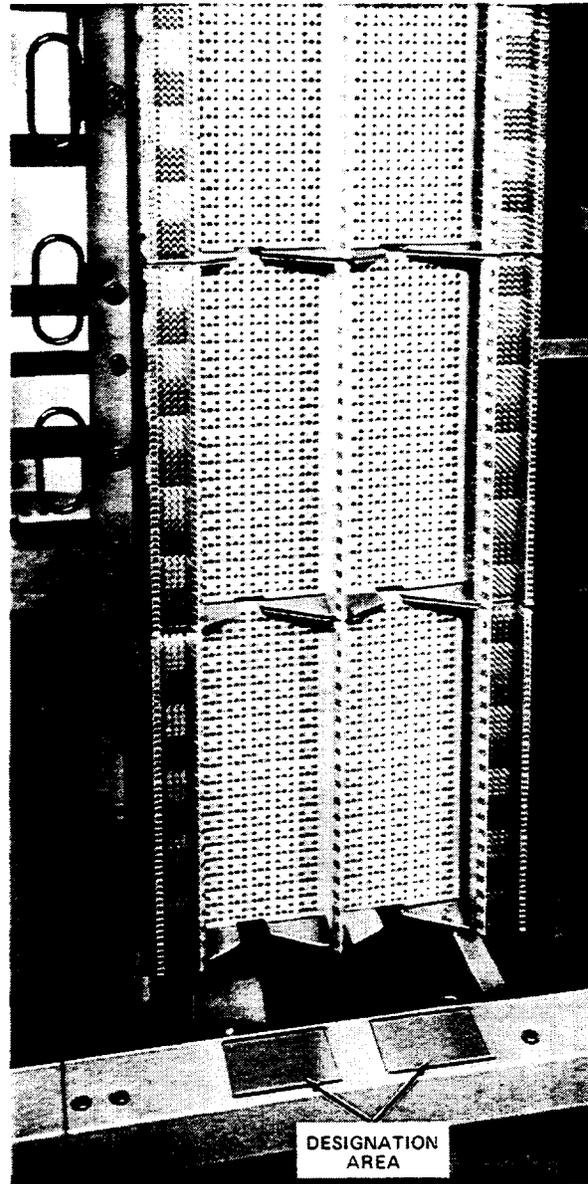


Figure 4—Guardrail/Designation Area

2.11 Initially, the 309-type connector utilization is limited to satisfying growth requirements on the LPCDFs. A *new LPCDF*, ED-97754-74, is available and furnished with the new required components; ie, *dual distributing rings*, guardrails, etc. The termination density of the LPCDF is 900 pairs per vertical.

2.12 A new LPDPF, ED-97755-72, is also available for new installations. The termination density of the LPDPF using 309-type connectors is the same as using 308-type 3 connectors (800 pairs) per vertical on standard ED-97755-71 framework. However, terminating the equipment cables onto the front-facing field of the 309-type connector rather than onto the back of a hinged 308-type 3 connector is more efficient, convenient, and orderly. Future rearrangements and terminations on the 309-type connector are easier to accomplish than on the congested backplane wiring side of the 308-type 3 connector.

3. INSTALLATION

PRECAUTIONS

- 3.01** Store the connectors in a dry location. Do not leave these units on loading docks or in locations exposed to the weather.
- 3.02** When unpacking the connector, open the carton on the side marked "OPEN FROM THIS SIDE".

3.03 Do not bend the cable stubs in a radius of less than 5 inches, nor to a 5-inch radius more than twice at the same general location.

3.04 Do not remove the packing material from the connector until it is ready for installation on the vertical frame.

INSTALLING THE 309-TYPE CONNECTOR

3.05 The 309-type connectors are installed on conventional distributing frames and low profile double-sided protector frames. AT&T 201-220-101 describes the conventional distributing frames and AT&T 201-219-101 describes protector frames.

3.06 The capacity of the ED-97754-74 low profile conventional distributing frame is 900-pair terminations per vertical and the capacity of the ED-97755-72 low profile double-sided protector frame is 1600 pairs per one bivertical bay.

3.07 The bivertical arrangement of 309-type connectors requires **two** distributing rings (Figure 3 and 5) in each **alternating** vertical bay. Using two distributing rings in place of one eliminates the interweaving of jumpers and produces a more organized arrangement of wiring. The distributing rings that are attached to **odd-numbered** verticals are color coded **orange**. The distributing rings that are attached to **even-numbered** verticals have the standard **light-gray** enamel finish (Figure 6).

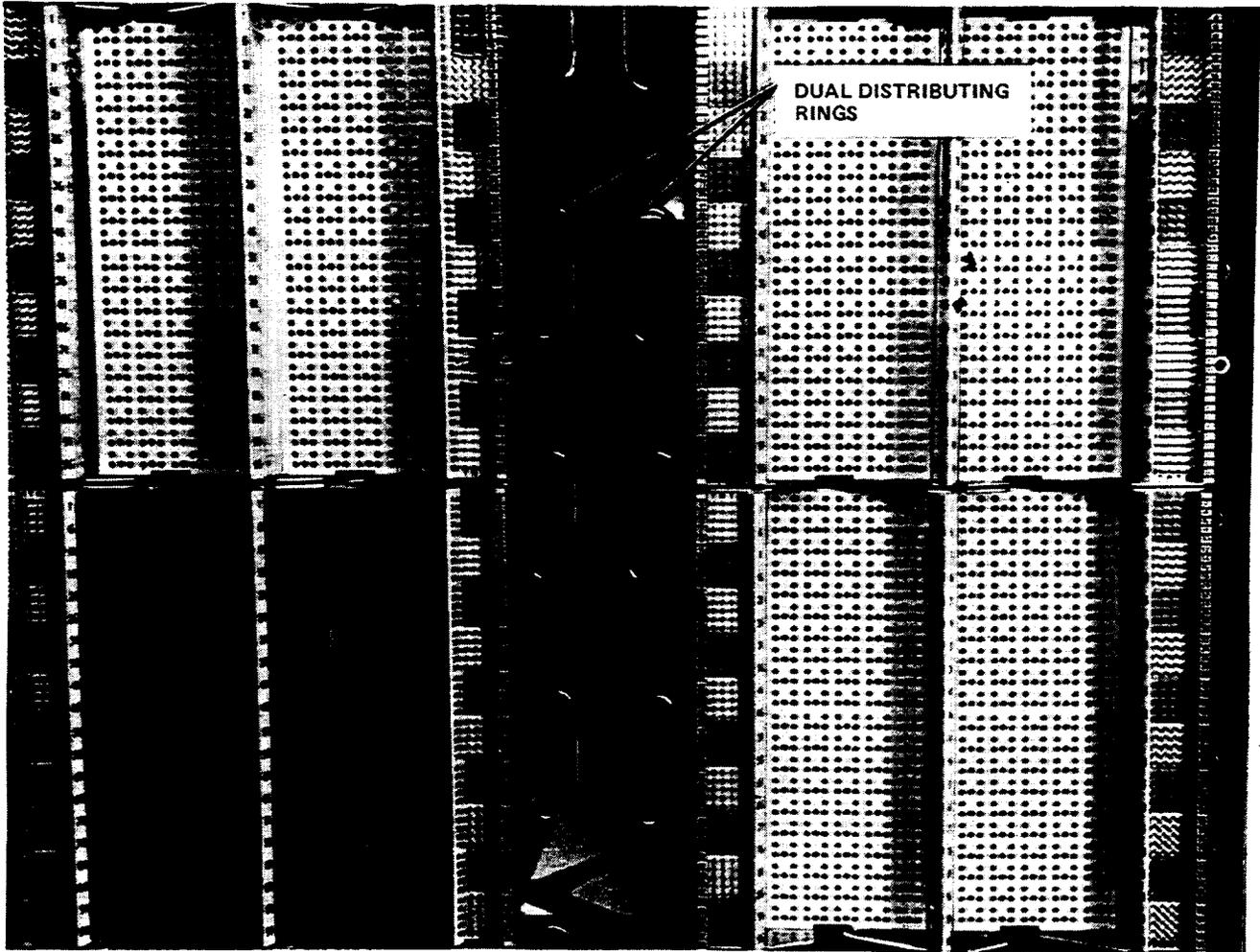


Figure 5—Dual Distributing Rings

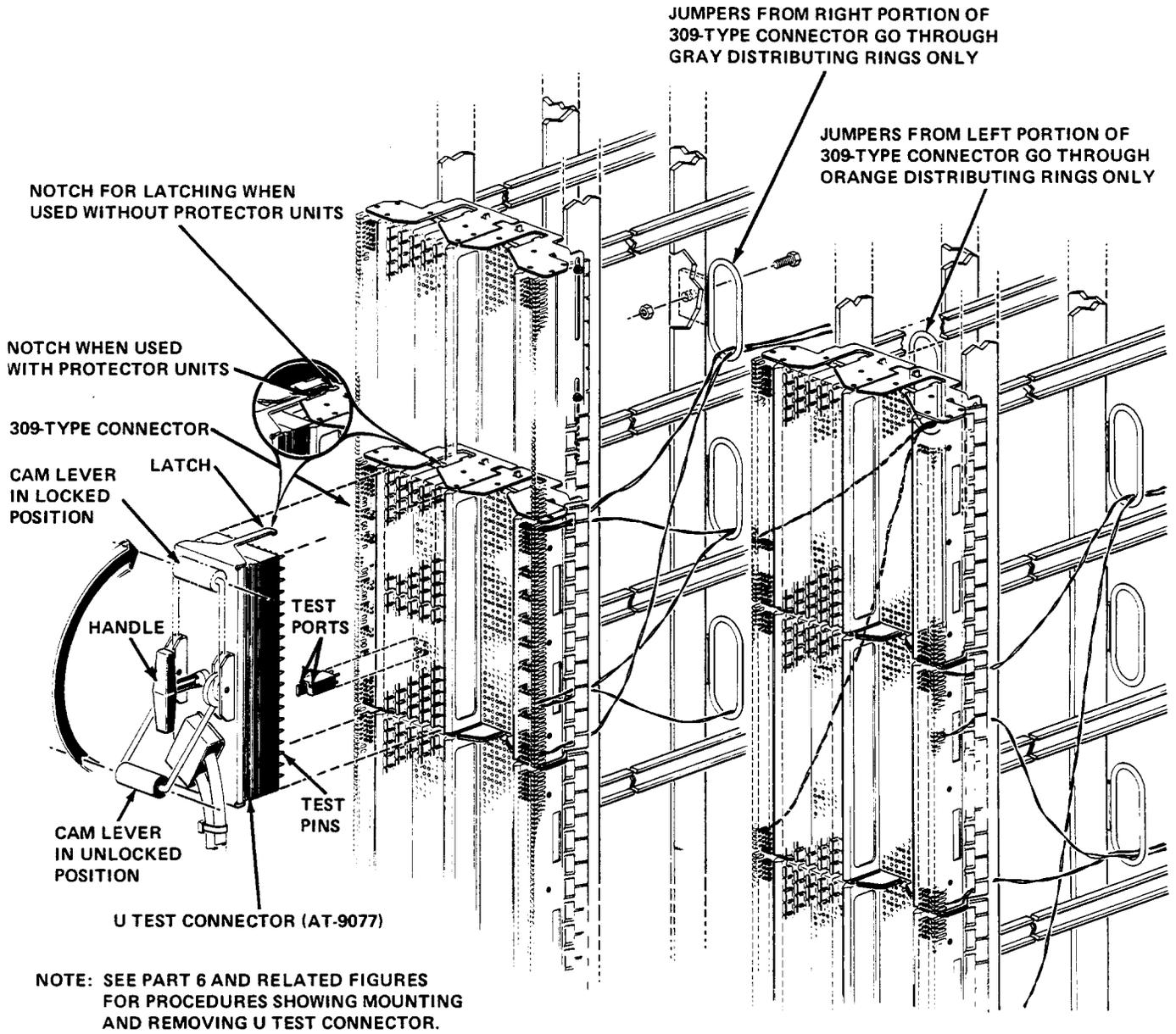


Figure 6—309-Type Connector—Installations and Operations

3.08 Prior to installing 309-type connector(s):

- (1) Open the cable entrance slots or ferrules in the floor, in accordance with local instructions.
- (2) Mark the cable number and pair count of each connector stub cable on a linen tag or glass tape and **attach** to the stub cable prior to placing it through the floor to the cable entrance facility.

Warning: *To prevent damage to the wire wrap terminals, do not remove the packing material from the connector until it is ready for installation.*

3.09 Position cable and start installation.

- (1) See Figure 7 and 8 for numbers that correspond to the following steps.
- (2) After removing the 309-type connectors from their cartons, determine the connector section

that is for left mounting and the connector that is for right mounting on the frame verticals.

Note: The left connector is always mounted first.

- (3) Remove any cable twist that may be present.
- (4) Position the cable to swivel it in the direction in which the stub cable will be placed in the vertical.

Note 1: In a location where the stub cables are to be dressed **downward**, start installing the connectors from the **top** and work toward the bottom of the vertical. In a location where the stub cables are to be dressed **upward**, start installing the connectors from the **bottom** and work toward the top of the vertical.

Note 2: It is recommended that the entire bivertical be filled and that the connectors are installed in the direction of the frame growth.

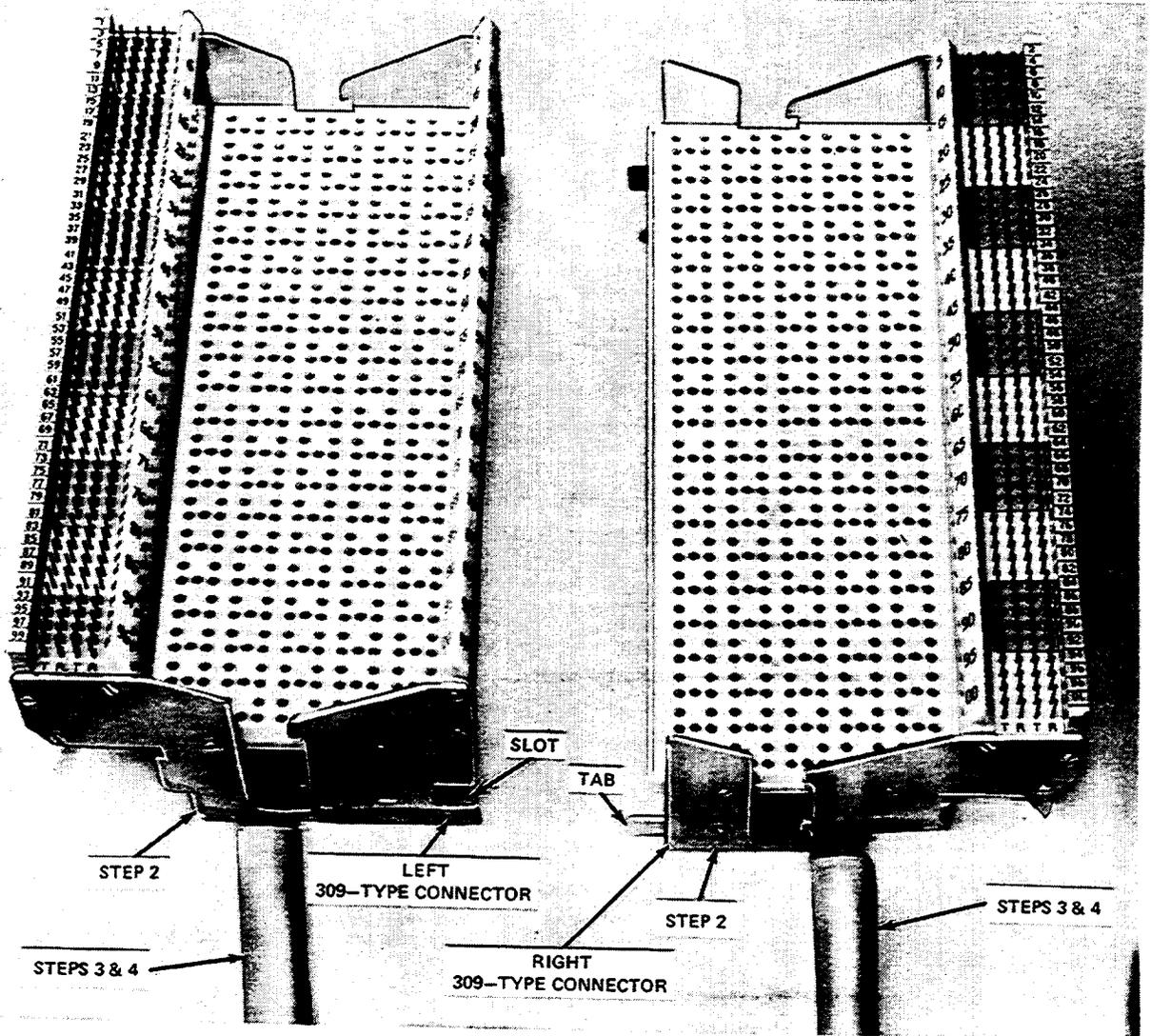


Figure 7—Front View of 309-Type Connectors

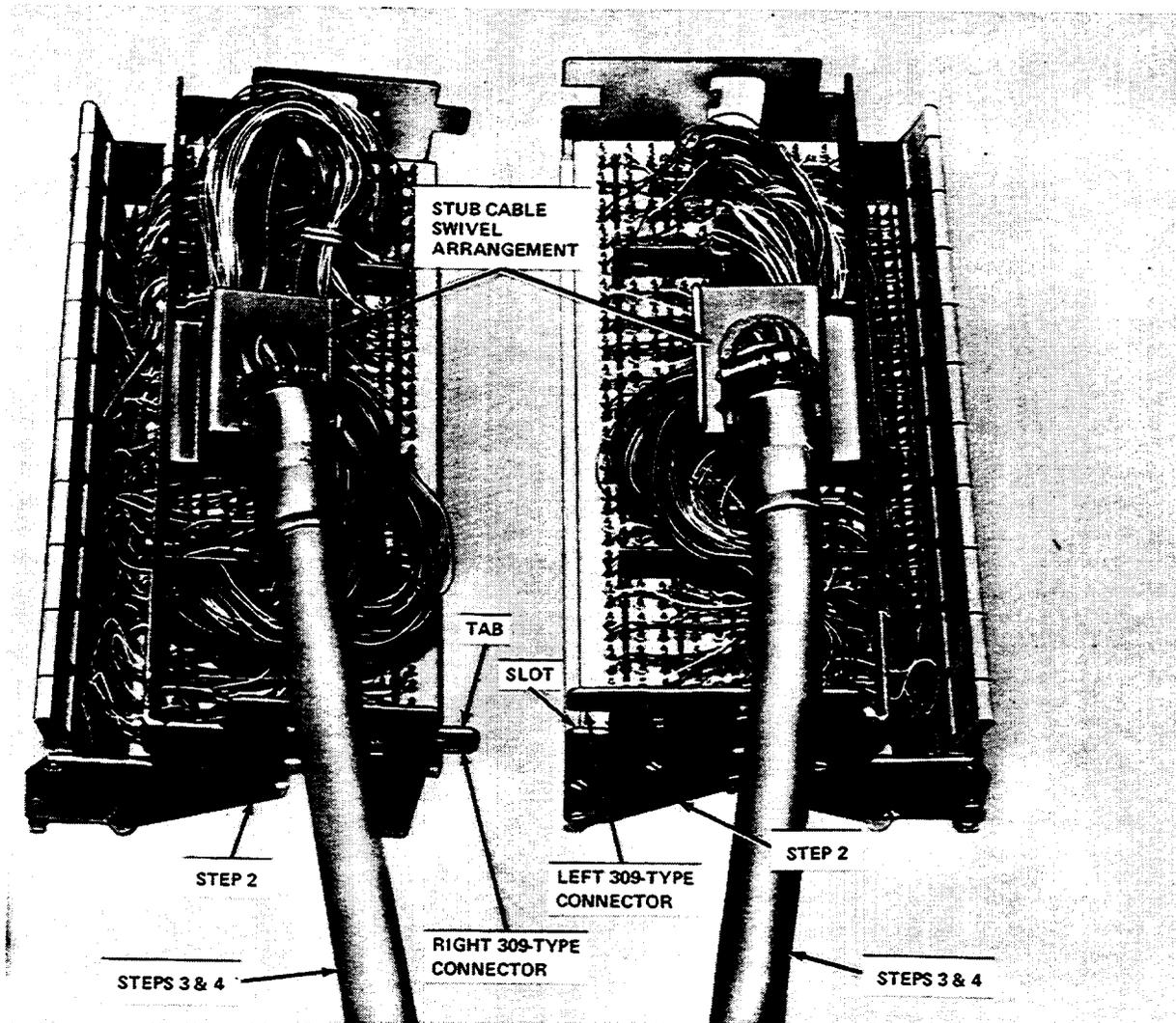


Figure 8—Back View of 309-Type Connectors

3.10 Align the left connector.

- (1) See Figure 9 and 10 for numbers that correspond to the following steps.
- (2) Route the stub cable through the cable entrance facility. Leave enough slack in the stub at the connector end to allow for mounting the **left** 309-type connector in the assigned position.

- (3) Align the slots of the **left** 309-type connector with the mounting holes in the frame. Loosely tighten the furnished hexagon-head mounting screw into the bottom threaded mounting hole.
- (4) Loosely tighten the other furnished hexagon-head mounting screw into the top threaded mounting hole.

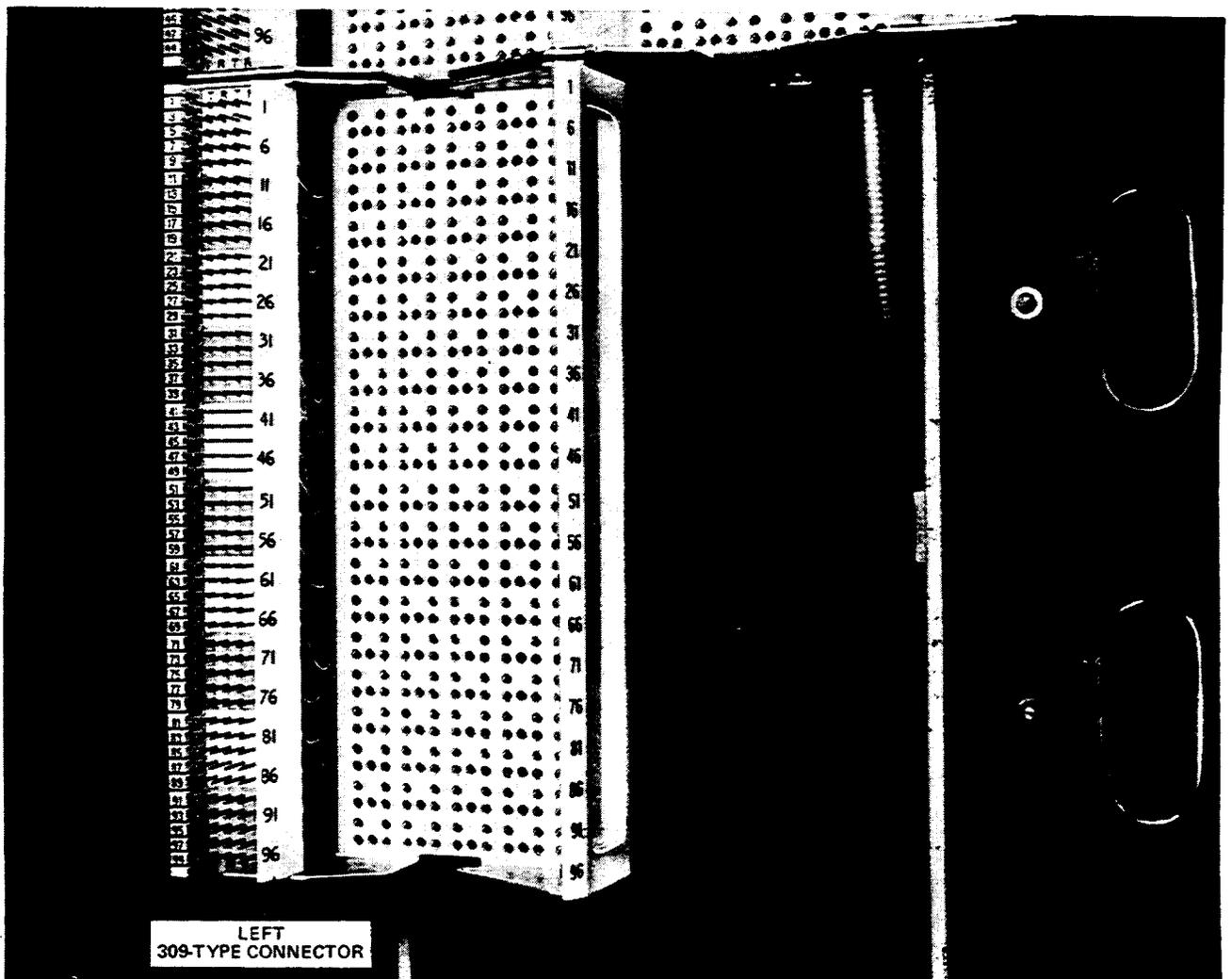


Figure 9—Left-Mounted 309-Type Connector

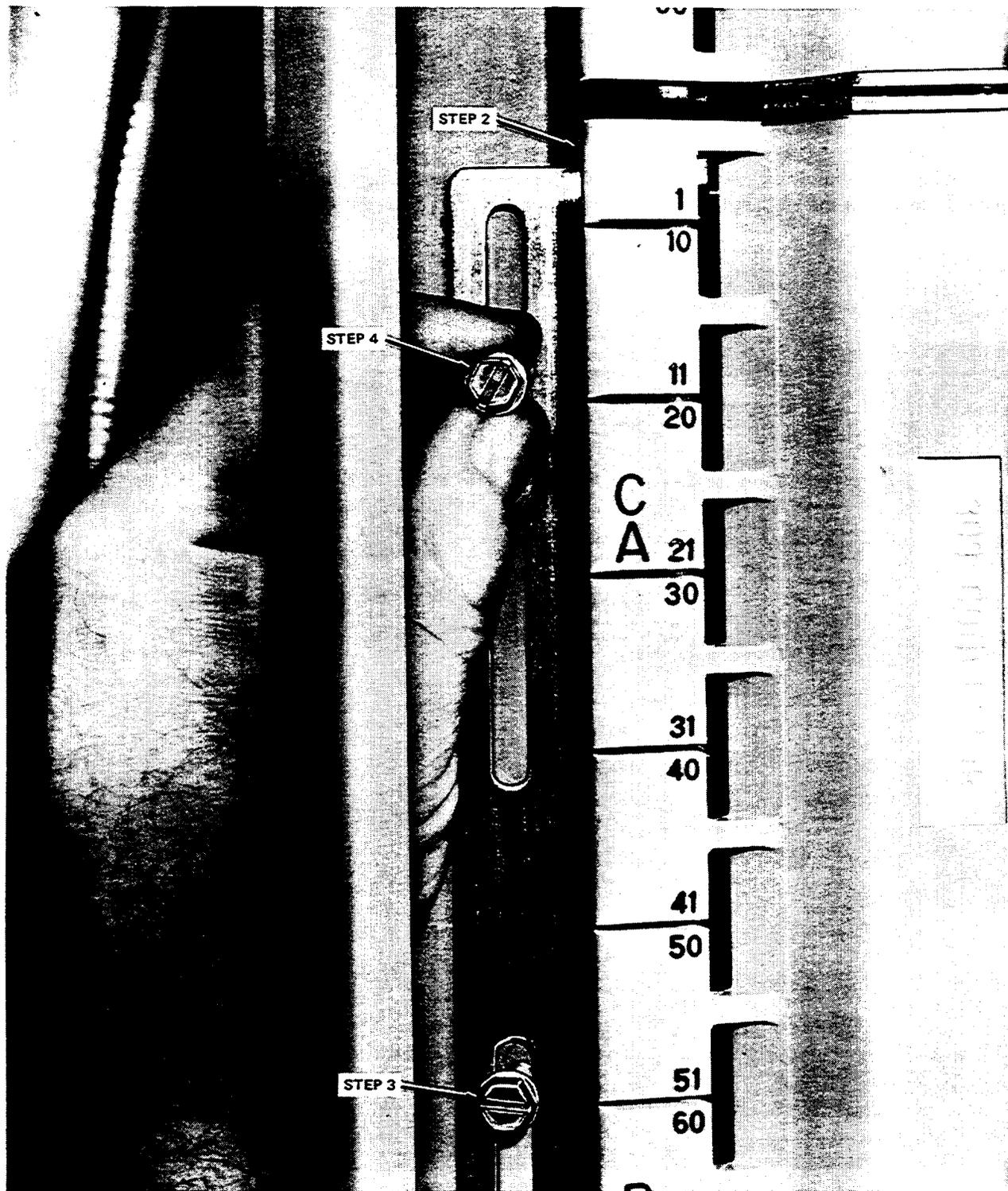


Figure 10—Aligning Mounting Screws Onto Frame (Left Connector)

3.11 Position the right connector.

- (1) See Figure 11 for numbers that correspond to the following steps.
- (2) Route the stub cable through the cable entrance facility. Leave enough slack in the stub at the

connector end to allow for mounting the **right** 309-type connector in the assigned position.

- (3) Before positioning the **right** 309-type connector into place, the tab (Figure 12) must be aligned with the slot in the left connector.

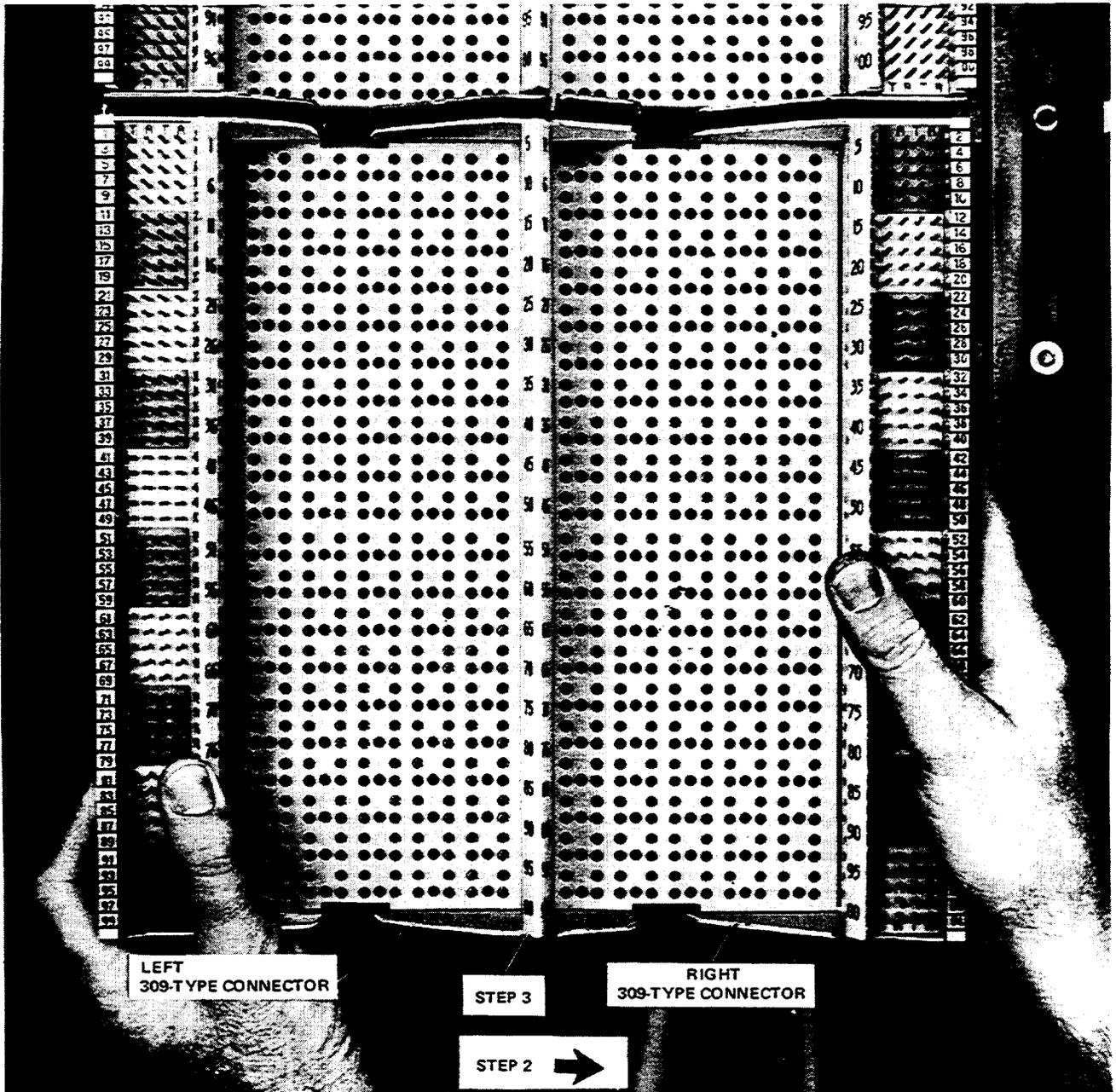


Figure 11—Positioning Right-Side of 309-Type Connector

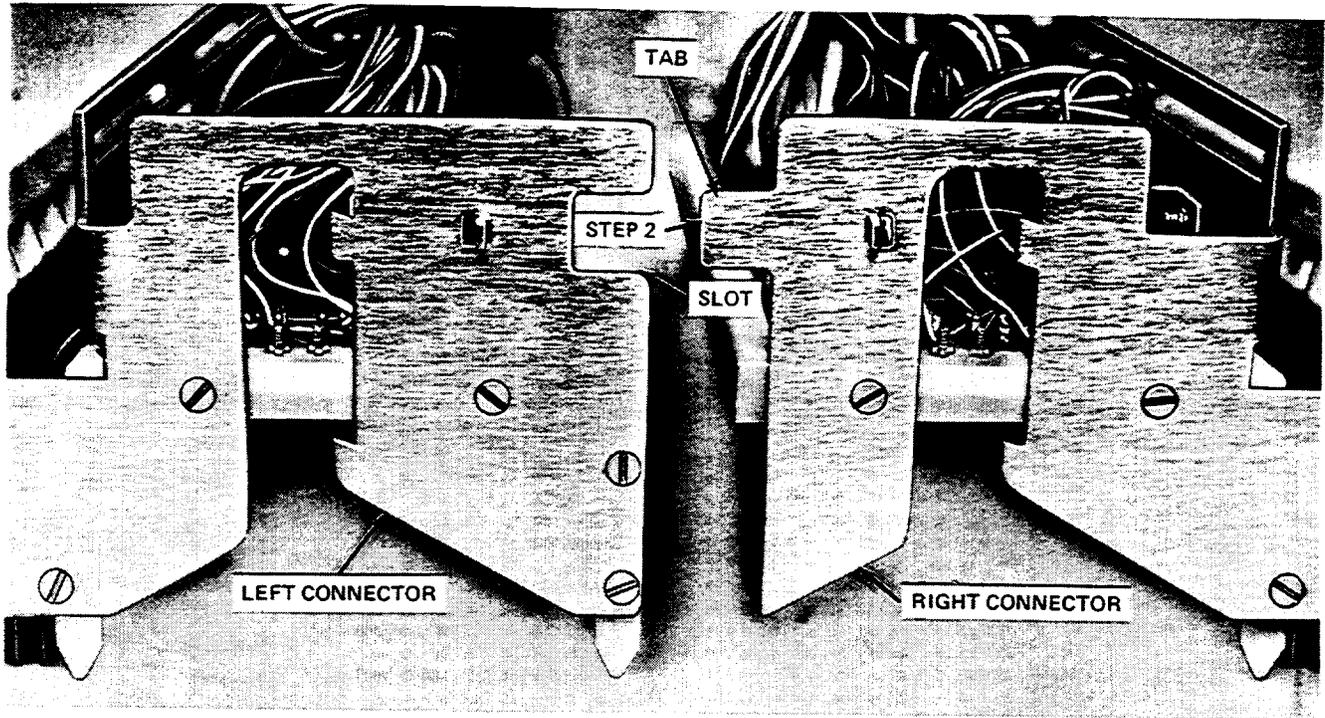


Figure 12—Aligning Tab With Slot

3.12 Align the tab.

- (1) See Figure 12 for the number that corresponds to the following step.
- (2) Align the tab of the **right** connector with the slot of the **left** 309-type connector.

3.13 Seat the tab.

- (1) See Figure 13 for the number that corresponds to the following step.
- (2) Seat the tab into the slot.

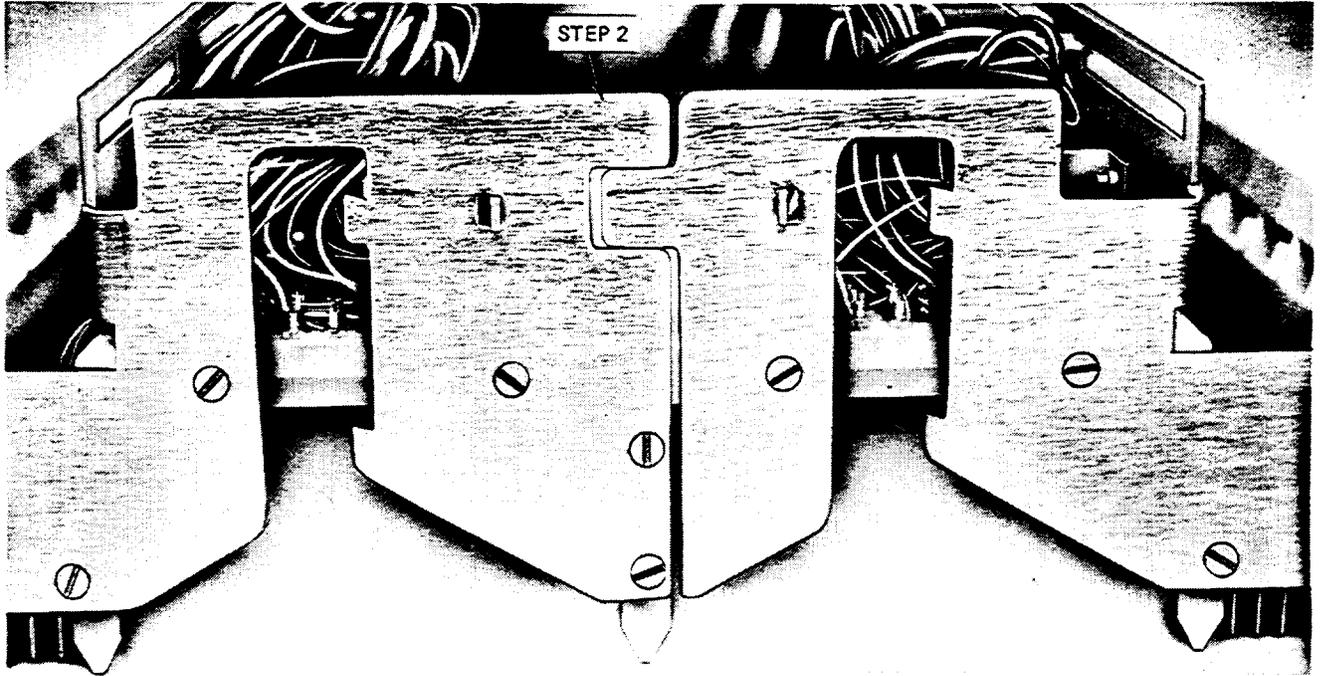


Figure 13—Seating Tab

3.14 Align the mounting screws.

- (1) See Figure 14 for the number that corresponds to the following step.
- (2) Align the slots of the **right** 309-type connector with the mounting holes in the frame. Loosely

tighten the bottom hexagon-head mounting screw with a 5/16 inch socket, short extension, and ratchet or screwdriver.

- (3) Likewise, loosely tighten the top screw.

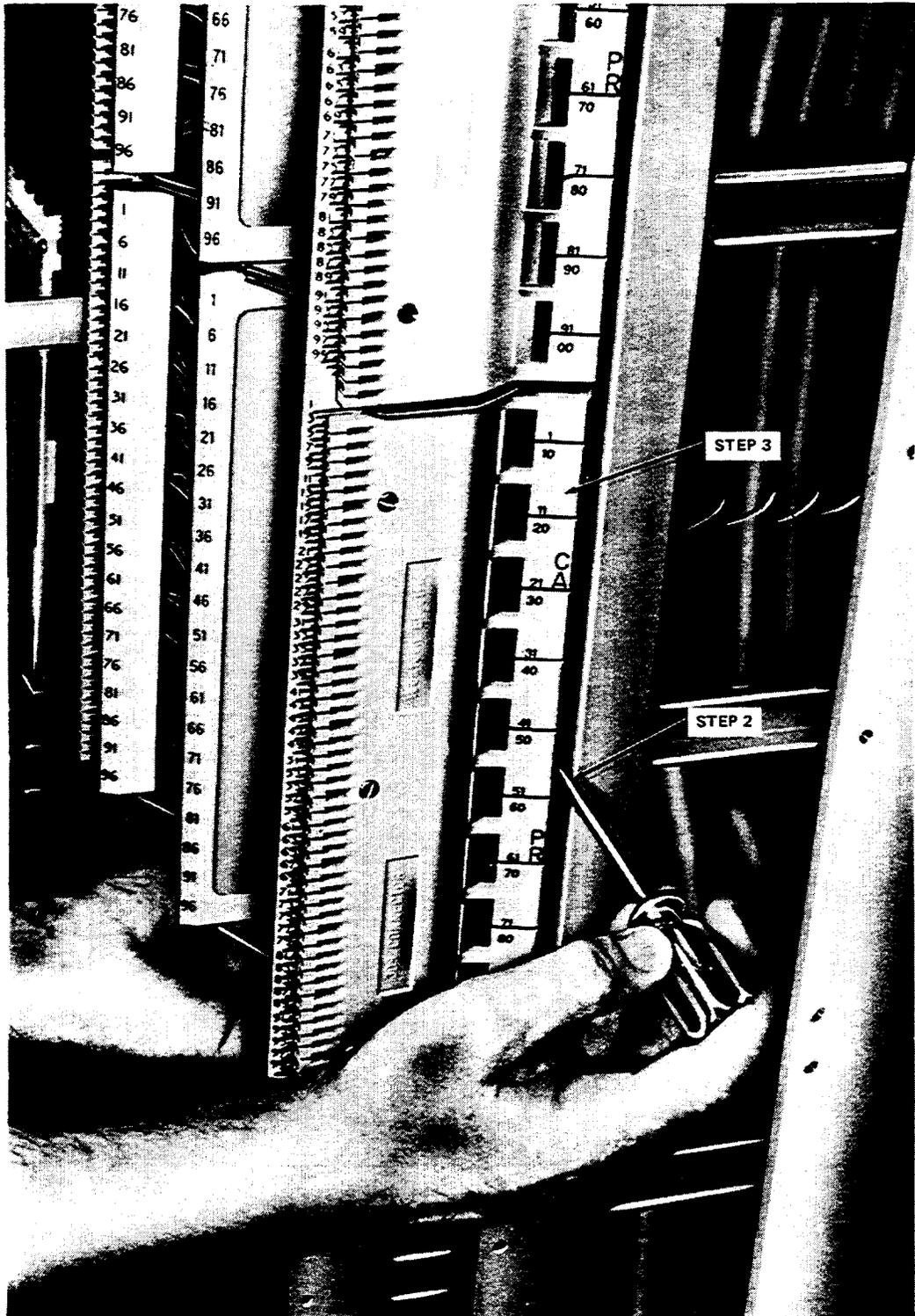


Figure 14—Aligning Mounting Screws Onto Frame (Right Connector)

3.15 Align bottom tab.

(1) See Figure 15 for the number that corresponds to the following step.

(2) Check to ensure that the tab in the bottom connector is in alignment with the slot in the top connector.

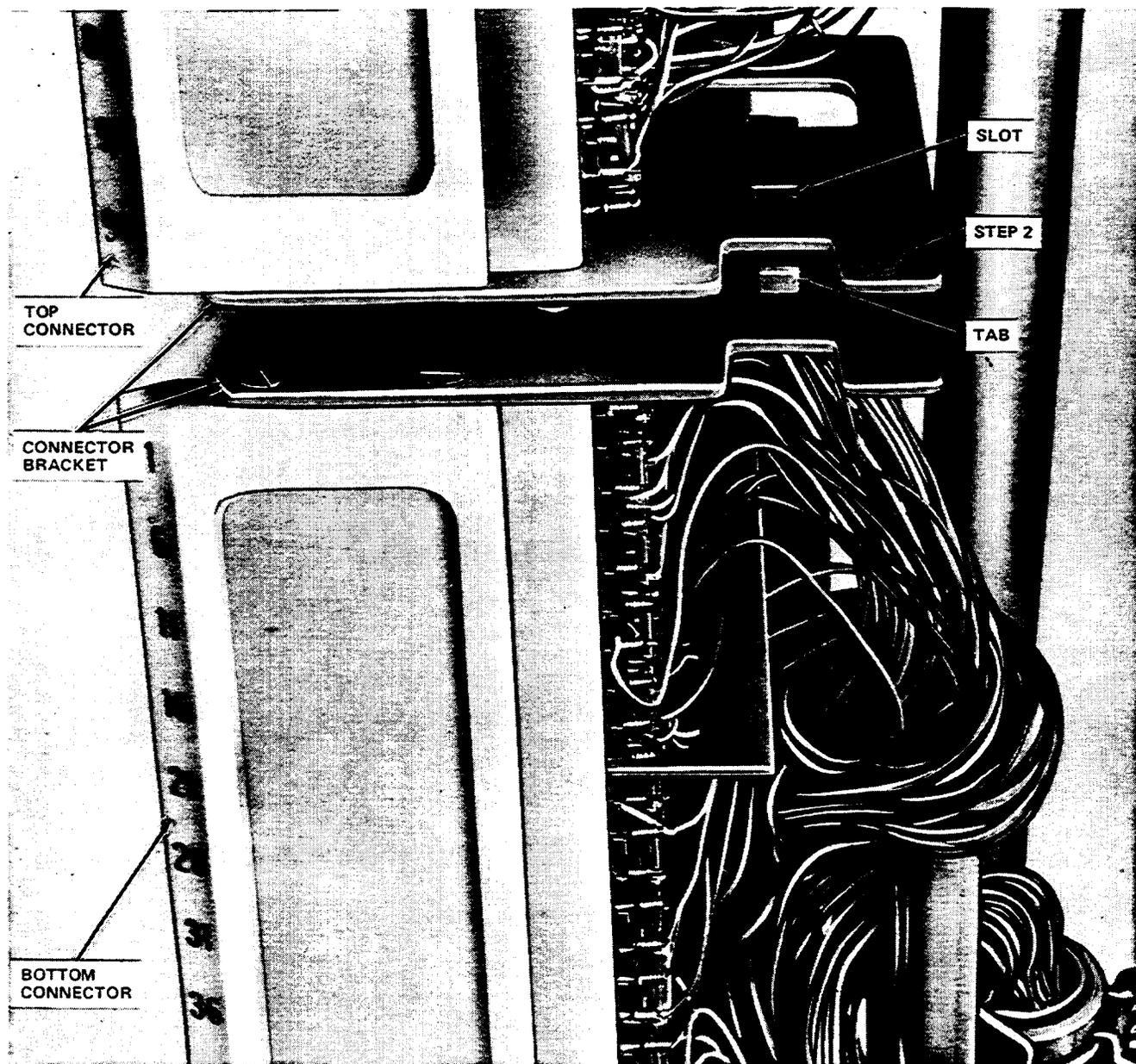


Figure 15—Aligning Bottom Tab Connector With Slot on Top Connector

3.16 Seat bottom tab.

- (1) See Figure 16 for the number that corresponds to the following step.

- (2) Push up on both connectors until the tabs are seated in the slots.

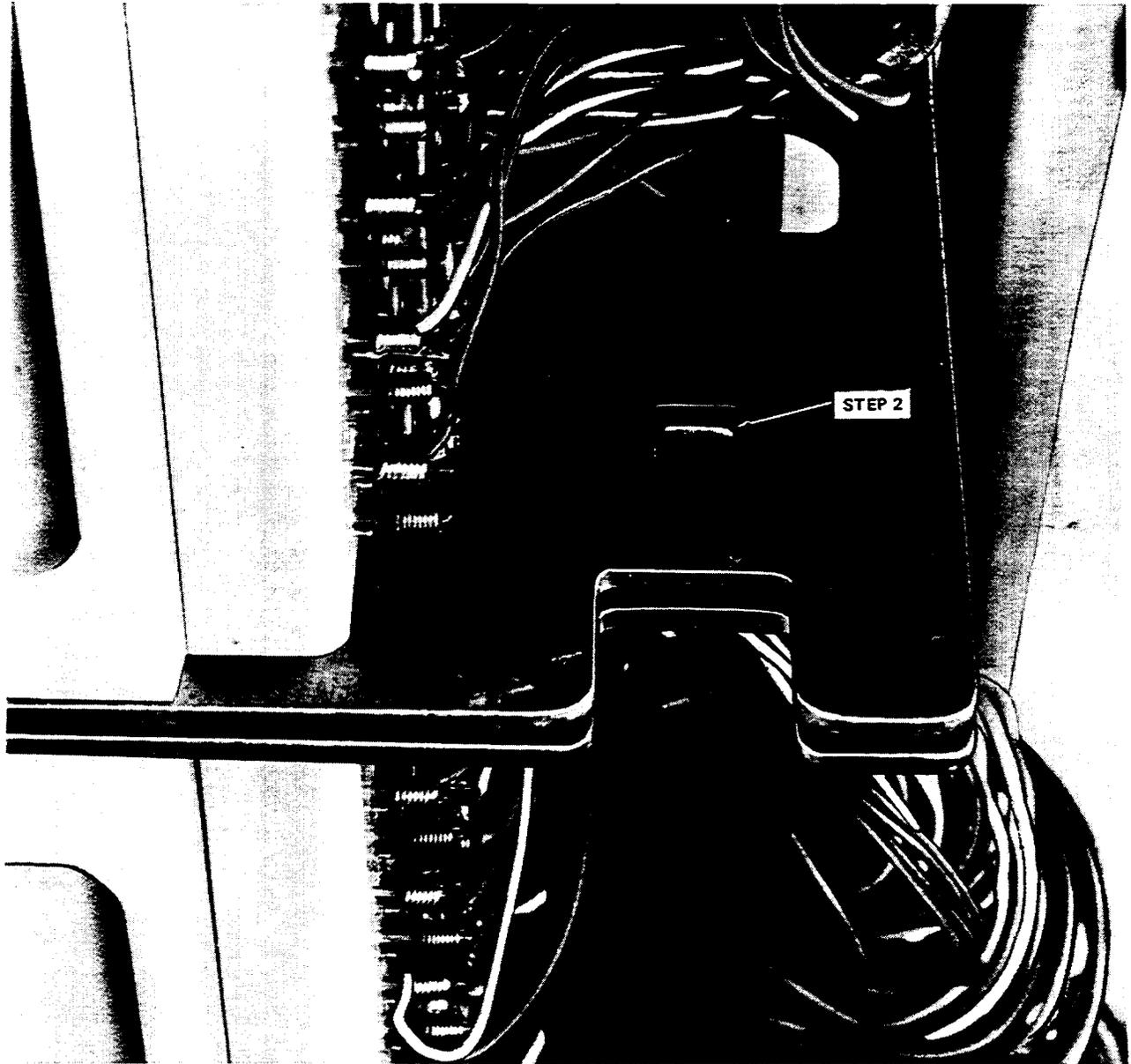


Figure 16—Seating Bottom Tab Connector Into Slot of Top Connector

3.17 Tighten mounting screws.

(1) See Figure 17 for the number that corresponds to the following step.

(2) While pushing up on both connectors, tighten the hexagon-head mounting screws on both connectors with a 5/16 inch socket, short extension, and ratchet or screwdriver.

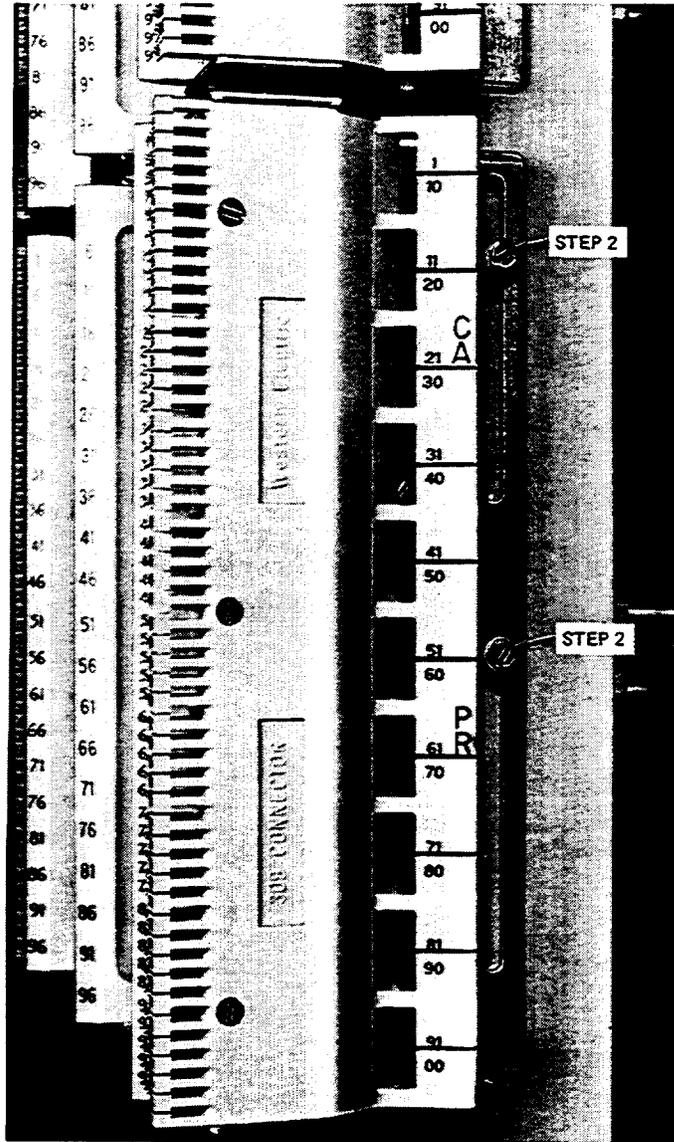


Figure 17—Tightening Screws

3.18 After the connectors are mounted, lash the stub cables to the transverse arms in a neat manner, using lacing twine or cable ties.

3.19 Seal the cable entrance slots or ferrules in the floor in accordance with local instructions and/or fire protection practices.

MARKING THE 309-TYPE CONNECTOR

3.20 For 309-type connector installations, a redesigned sheet-metal type structure is used for the guardrail on the LPCDF and LPDPF. The width of the guardrail is increased such that it contains a designation label at each vertical location. Slits are provided in the sheet metal at each of the vertical locations to accommodate a clear plastic KS-21528, List 4 label guard for protecting the information. The new guardrail design also contains one AC electrical outlet at each 12-foot interval of frame.

4. REPAIR PROCEDURES

4.01 Before making repairs to the apparatus referred to in this part, craft personnel should be familiar with the contents of the following practices:

PRACTICE	TITLE
069-132-811	Punched or Wire-Type Terminals (Not Having Notches or Perforations) Method of Making and Removing Wrapped Connections
069-140-811	Soldered Connections—Using Soldering Coppers—Method of Making and Removing.

PRECAUTIONS

4.02 This practice covers only those parts that can be replaced in the field. No attempt should be made to replace parts not designated.

4.03 Exercise extreme care when removing, connecting, and replacing terminals to prevent damage to adjacent connections and to avoid crosses to operating circuits.

4.04 The ends of wire previously used for a solderless wrapped connection or soldered connection shall not be reused for subsequent connections. The end of the wire must be cut off and reconnected by

solderless wrapping or soldering. Except in cross-connection fields, it will be necessary to splice the wire if there is not enough slack to provide the number of turns required for solderless wrapped connections. In cross-connection fields, the wire shall be rerun to provide sufficient length for a solderless wrapped connection (AT&T 069-132-811).

TOOLS AND MATERIALS

4.05 The following is a list of the tools and materials used in repair procedures:

CODE/SPEC NO	DESCRIPTION
AT-7860	B long-nose pliers
658B	Terminal extractor
AT-7825	4-inch E screwdriver
—	Off-set screwdriver
—	Wrench, 5/16-inch box or open-ended
401787726	Cable ties
KS-6320	Orange stick
KS-16748	Insertor
—	Sleeving
AT-7424	E rosin-core solder
KS-8740	Soldering copper
KS-16363,L3	Wire-wrap gun
KS-20827,L1 or KS-20551	Wire unwrapping tool
R-2916	Twine.

REMOVING AND REPLACING DEFECTIVE TERMINALS

4.06 Three types of terminals are replaceable on the 309-type connector. They are the cross-connect panel tip or ring, ground, and connector panel tip or ring terminals. The following paragraphs detail the removing and replacing of these terminals.

Cross-Connect Panel Tip or Ring Terminal

4.07 To remove the 843826447 cross-connect tip or ring terminal (Figure 18), proceed as follows:

- (1) On the front of the cross-connect panel, tag and remove the cross-connection(s) from the terminal to be replaced.
- (2) Using a 5/16-inch wrench, remove the two bolts holding the connector assembly to the vertical framework.
- (3) If the connector assembly cannot be moved outward, it will be necessary to loosen other connector assemblies on the same side of the vertical framework.
- (4) Remove the fanning strip by removing the four flat-head screws from the top and bottom

mounting brackets and remove the flat-head screws holding the fanning strip to the cross-connect panel.

- (5) Slide the fanning strip back toward the frame, being careful not to dislodge any cross-connections from the slotted ports in the fanning strip.
- (6) Remove the two flat-head screws from the top and bottom mounting brackets holding the cross-connect panel.
- (7) Rotate the panel to the right (right connector assembly) or to the left (left connector assembly) to gain access to the rear of the panel.
- (8) Remove the shield and unwrap the cable wire(s) from the terminal to be removed.
- (9) Using the B long-nose pliers, remove the damaged or broken terminal from the rear of the cross-connect panel.

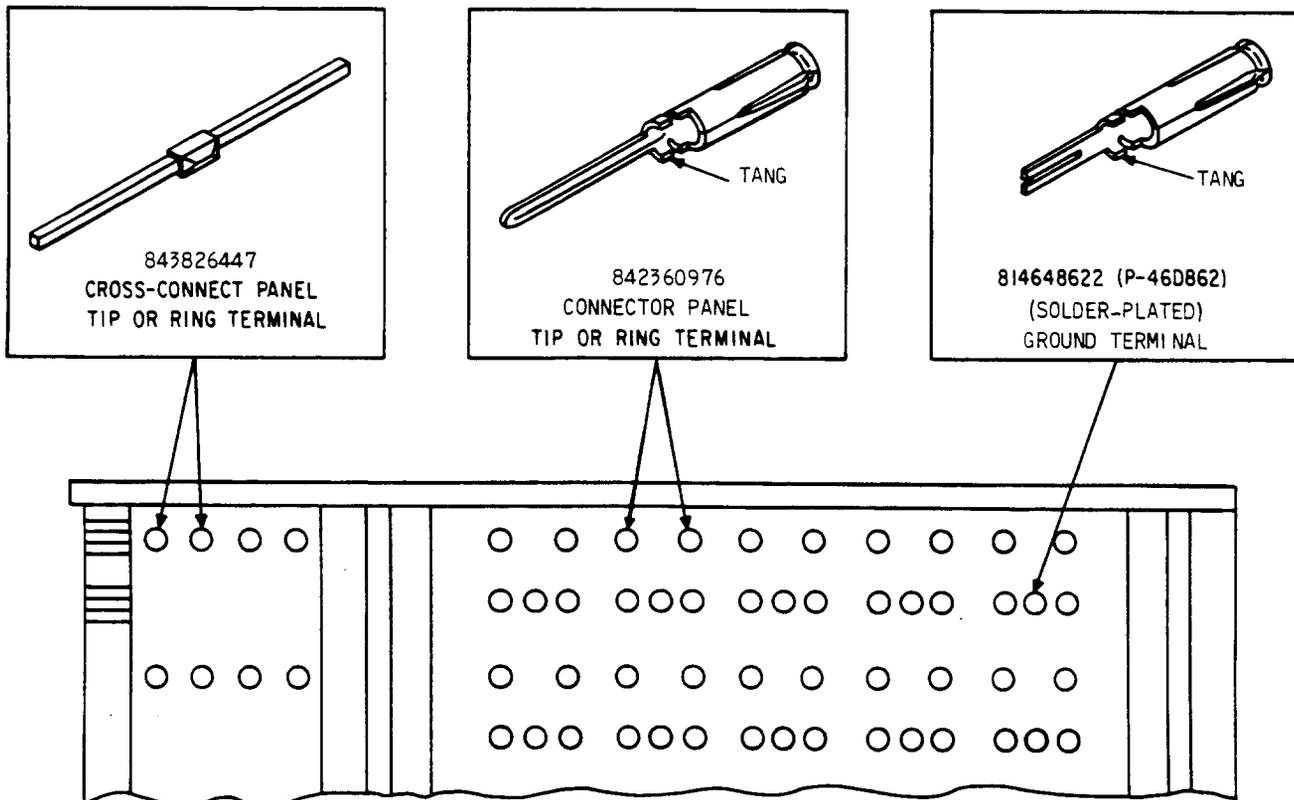


Figure 18—309-Type Connector — Replacement Terminals

4.08 To replace the 843826447 cross-connect panel tip or ring terminal, proceed as follows:

- (1) On the rear of the cross-connect panel, insert the new terminal into the same hole from which the old terminal was removed.
- (2) At the front or cross-connect side of the panel, using the B long-nose pliers, pull the terminal into its proper position.
- (3) Using the wire-wrapping gun, reconnect the cable wire(s) to the new terminal at the rear of the panel.

Note: Prior to making connections to the terminal, refer to paragraph 4.04.

- (4) Rotate the cross-connect panel to its original position. Check the shield to be sure it is properly seated in the tracks of both the cross-connect and connector panels.
- (5) Fasten the cross-connect panel to the top and bottom mounting brackets using two flat-head screws.
- (6) Slide the fanning strip back to its original position and fasten it to both the top and bottom mounting brackets and cross-connect panel using seven flat-head screws.
- (7) Slide the connector assembly into its original position on the vertical framework and fasten it to the framework with the two 5/16-inch bolts.
- (8) If other connector assemblies had been loosened and moved, place them in their original location and fasten them to the vertical framework.
- (9) Reconnect the cross-connection(s) to the new terminal.

Note: Prior to making connections to the terminal, refer to paragraph 4.04.

Ground Terminal

4.09 To remove the 814648622 (P-46D862) ground terminal (Figure 18), proceed as follows:

- (1) Follow the procedure outlined in paragraph 4.07, Steps (2) through (7).
- (2) Using a soldering copper, remove all solder from the terminal to be removed.
- (3) Using the B long-nose pliers, close the tangs on the terminal or break the terminal flush with the back of the connector panel.
- (4) Remove the terminal from the front of the connector panel by inserting a protector unit into the circuit and then removing it.

4.10 To replace the 814648622 (P-46D862) ground terminal, proceed as follows:

- (1) On the front of the connector panel, properly orient the new terminal and insert it into the same hole from which the old terminal was removed.
- (2) Using the fingers, push the terminal into the hole as far as possible.
- (3) Insert a protector unit into the connector to hold the terminal in place.
- (4) On the wiring side of the connector, use the B long-nose pliers to pull the terminal into its proper position. Pay attention to the orientation of the terminal. Determine that the terminal is in the correct position by observing the position of adjacent terminals.
- (5) Using the B long-nose pliers, carefully spread the tangs of the terminal to lock the terminal in place in the connector panel.
- (6) Using the soldering copper, solder the terminal to the ground bus.

Note: Prior to making the connection to the terminal, refer to paragraph 4.04.

- (7) Remove the protector unit.
- (8) Follow the procedure outlined in paragraph 4.08, Steps (4) through (8).

Connector Panel Tip or Ring Terminal

4.11 To remove the 842360976 connector panel tip or ring terminal (Figure 18), proceed as follows:

- (1) Follow the procedure outlined in paragraph 4.07, Steps (2) through (7).
- (2) Using a wire unwrapping tool, remove the wire(s) from the terminal to be removed.
- (3) Follow the procedure outlined in paragraph 4.09, Steps (3) and (4).

4.12 To replace the 842360976 connector panel tip or ring terminal, proceed as follows:

- (1) Follow the procedure outlined in paragraph 4.10, Steps (1) through (5).
- (2) Reconnect all leads to the terminal.

Note: Prior to making connections to the terminal, refer to paragraph 4.04.

- (3) Remove the protector unit.
- (4) Follow the procedure outlined in paragraph 4.08, Steps (4) through (8).

5. REPLACEMENT OF ASSOCIATED PARTS

5.01 The only replaceable parts on the 309-type connector, other than the terminals covered in the repair part of this practice, are the 843825639 (left half of connector) and the 843825647 (right half of the connector) fanning strips.

5.02 To replace either fanning strip, proceed as follows:

- (1) Using the R-2916 twine, place a tie around each group (ten pairs) of wires feeding through each of the ten ports.
- (2) To remove the cross-connections from the one-way gates of the fanning strip, use the orange stick to spread the one-way gate so that the wires can be slipped out of the fanning strip.

(3) Using a 5/16-inch wrench, remove the two bolts holding the connector assembly to the vertical framework.

(4) If the connector assembly cannot be moved outward, it will be necessary to loosen other connector assemblies on the same side of the vertical framework.

(5) Remove the fanning strip by removing the four flat-head screws from the top and bottom mounting brackets and remove the three flat-head screws holding the fanning strip to the cross-connect panel.

(6) Slide the new fanning strip behind the cross-connections and fasten it to the cross-connect panel and both the top and bottom mounting brackets using the flat-head screws removed in Step (5).

(7) Slide the connector assembly into its original position on the vertical framework and fasten it to the framework with the two 5/16-inch bolts.

(8) If other connector assemblies had been loosened and moved, place them in their original location and fasten them to the framework.

(9) Insert each group (ten pairs) of wires into the proper port of the new fanning strip and remove the twine that had held the groups of wires.

(10) Insert the cross-connections into the one-way gates of the fanning strip.

(11) Inspect the cross-connect panel for broken connections and verify that the wires are in the proper one-way gate.

6. REPAIR OF BROKEN OR DAMAGED WIRE CONDUCTORS

6.01 To repair a broken or damaged wire conductor leading from the moisture plug of the stub cable proceed as follows:

(1) Identify the wire conductor to be repaired leading from the moisture plug of the stub cable.

(2) Remove the wire-wrap connection at the corresponding terminal.

- (3) Cut the defective portion of the wire and splice a new length of wire to the remaining section. Provide sufficient length for the solderless wrapped connection.
- (4) Rerun the new length of wire back to the corresponding terminal.
- (5) Reconnect the wire conductor to the terminal.

7. TESTING

PROTECTOR UNITS

7.01 The 3- and 4-type protector units are used with the 309-type connectors to provide electrical protection. The protector units are ordered separately from the connectors. The 3- and 4-type protector units are described in Practice 201-208-100.

7.02 All standard plug-in protector units are equipped with four gold-plated tip and ring pins and a solder-plated ground pin.

7.03 Protector units with gold-plated pins should be used with connectors containing gold-plated socket terminals (i.e., all current protector unit and

connector codes). Protector units with gold-plated or solder-plated pins can be used in vintage connectors containing solder-plated socket terminals.

Caution: *Protector units with solder-plated pins should not be used on connectors with gold-plated socket terminals. This combination of plating and contact surfaces results in higher contact resistance, and surface degradation of gold-plated socket terminals.*

7.04 Before installing the 3- or 4-type protector units onto the connectors, each unit may be tested. The KS-20100, L5 test set (Figure 19) is used to test for the presence or absence of tip and ring continuity and ground and also provides a burnout feature to clear protector units shorted by carbon or dust particles. The 182A test set (Figure 20) is used to test the minibridge lifter protector units for tip and ring continuity and for shorted protector blocks. It also tests the function of the 410A switch contained in the protector unit. For test procedures, see Practice 201-208-100.

Note: The jacks (receptacles) for the protector units in the 303-, 305-, 307-, 309-, 310-, 310M-, and 311 connectors have reversed tip and ring orientation from the 302- and 308-type connectors (see Figure 21 and 22).

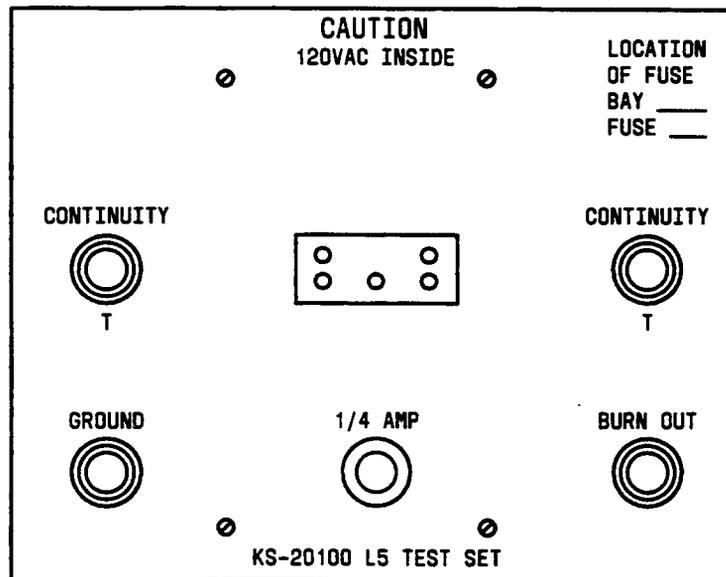
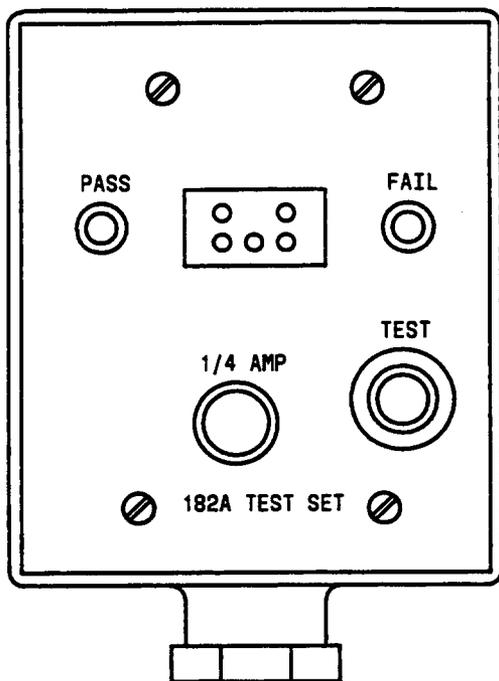


Figure 19—KS-20100, L5 Test Set



182A Test Set

Figure 20—182A Test Set

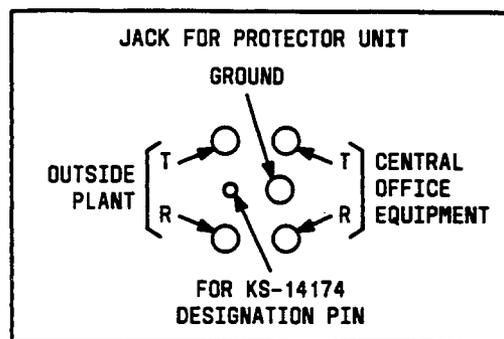


Figure 22—Jack for Protector Unit on 303-, 305-, 307-, 309-, 310-, 310M-, and 311-Type Connectors

TEST CONNECTORS, CORDS, PLUGS, WARNING MARKERS, INSULATORS, AND INDICATORS

7.05 The U test connector and the pick test panel and cords and plugs may be used with the 309-type connectors for testing purposes. Warning markers, insulators, and indicators are used on special service circuits to provide additional visibility and protection. See Practice 201-208-106 for description and use of these items.

CABLE PAIR TESTING

7.06 The 309-type connector does not have a separate test terminal field. Test access is accomplished via the test ports on the 4C-type protector units. A 100-pair test shoe, U test connector, AT-9007 (Figure 23) is used for making multiple cable pair tests either on the protected connector with a full complement of 4C-type protector units or on the unprotected connector panel (Figure 24). The mounting bracket of the 309-type connector has notched cutouts at the top and bottom which hold the U test connector in either of the two positions (Figure 6 and 25). The U test connector is used primarily for outside plant verification in conjunction with a variety of test equipment. The test connector can be used as the access device to check for grounds, opens, shorts, reversals, and backtaps.

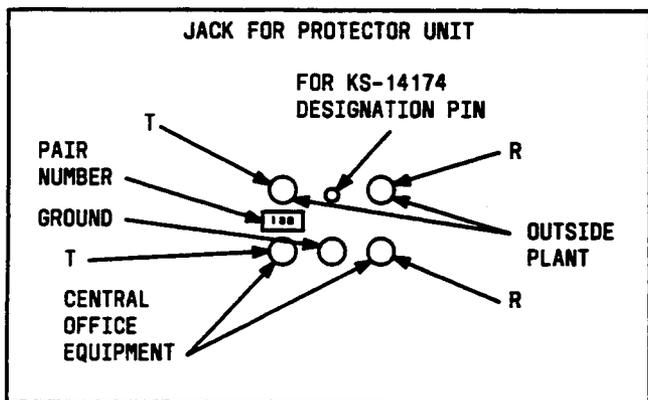


Figure 21—Jack for Protector Unit on 302- and 308-Type Connectors

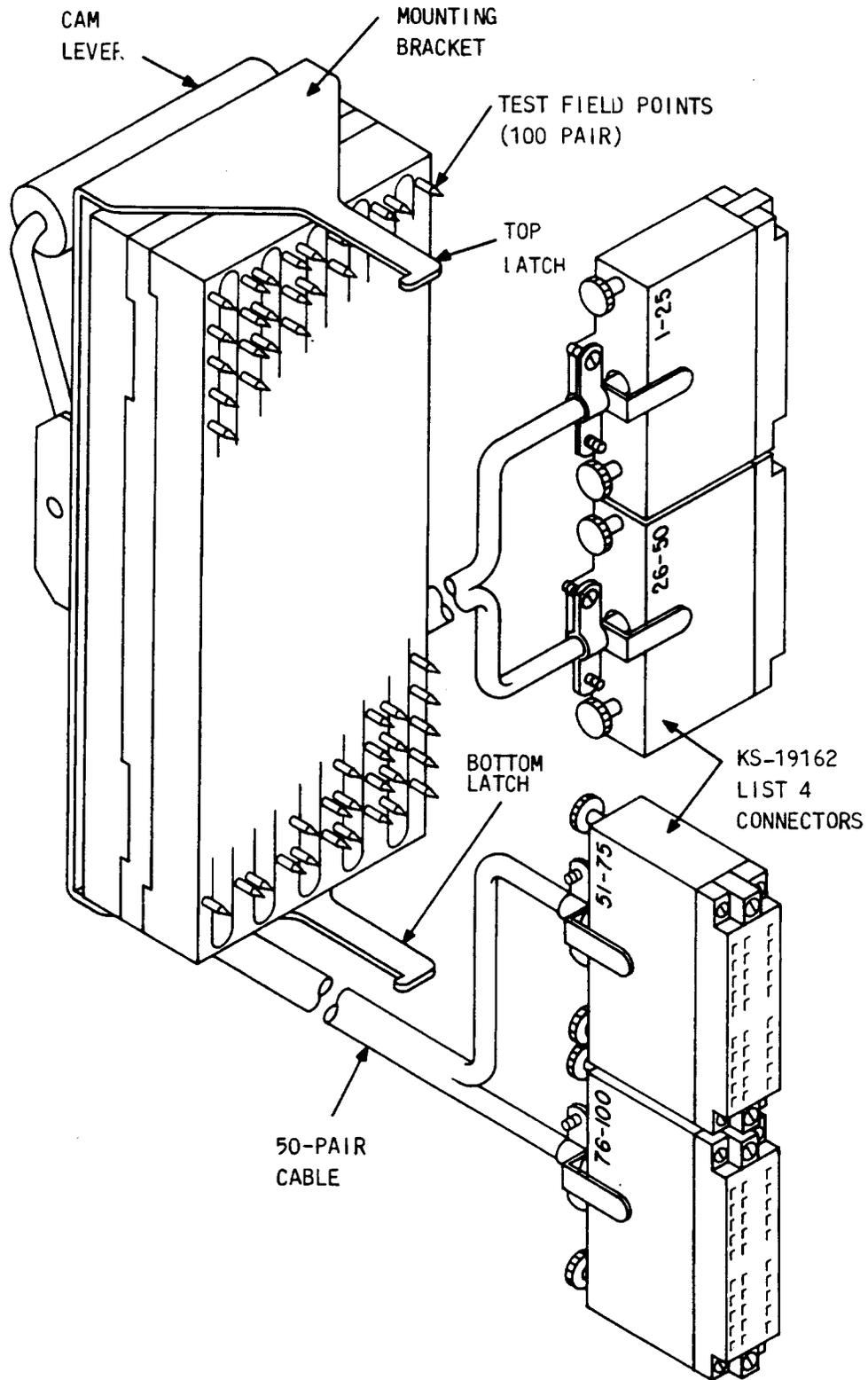


Figure 23—U Test Connector

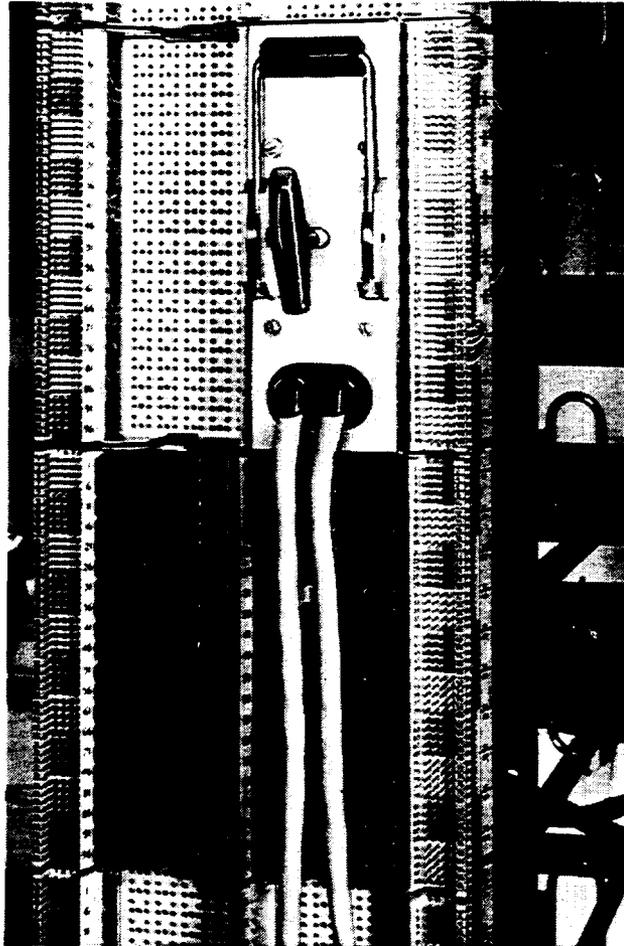


Figure 24—U Test Connector Mounted on Unprotected Panel

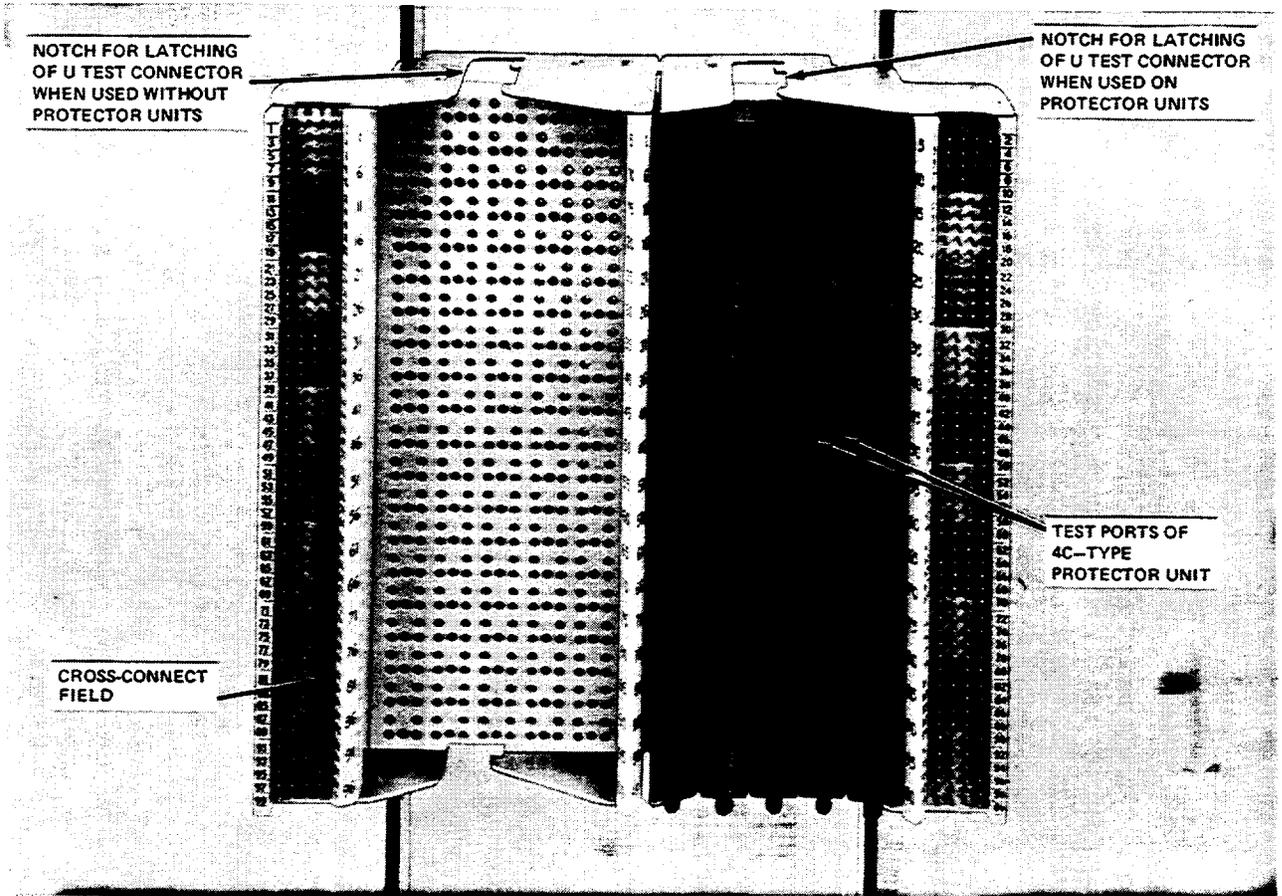


Figure 25—Notched Cutouts in 309-Type Connector

7.07 Figures 6 and 26 through 29 outline the procedures of mounting and removing the U test connector from the 309 panel or 4C-type protector units.

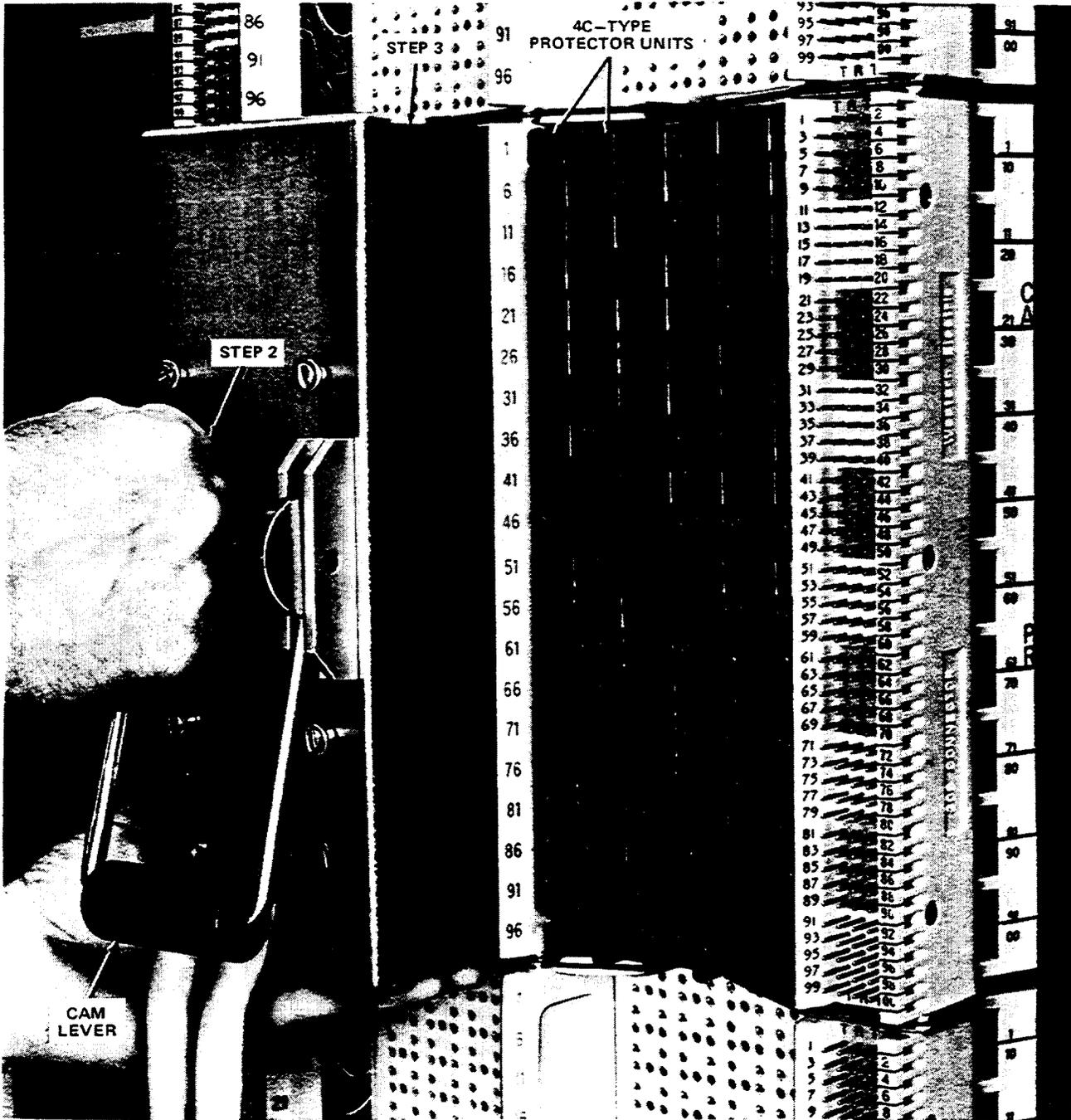


Figure 26—Aligning U Test Connector

STEP

PROCEDURE

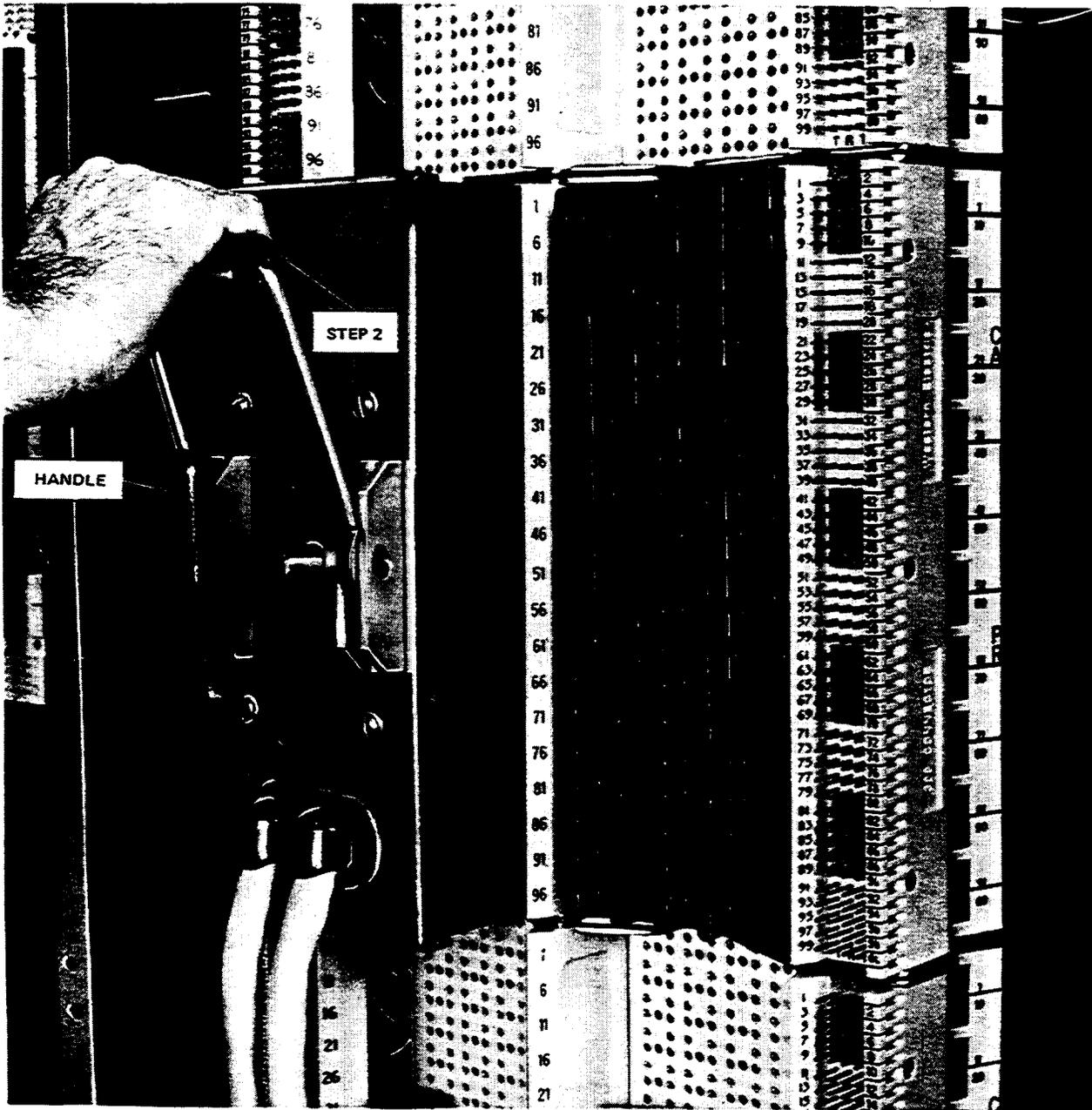


Figure 28—Locking U Test Connector

STEP	PROCEDURE
1	See Figure 28 for the number that corresponds to the following step.
2	Lock the test connector in place by swinging the cam lever up.

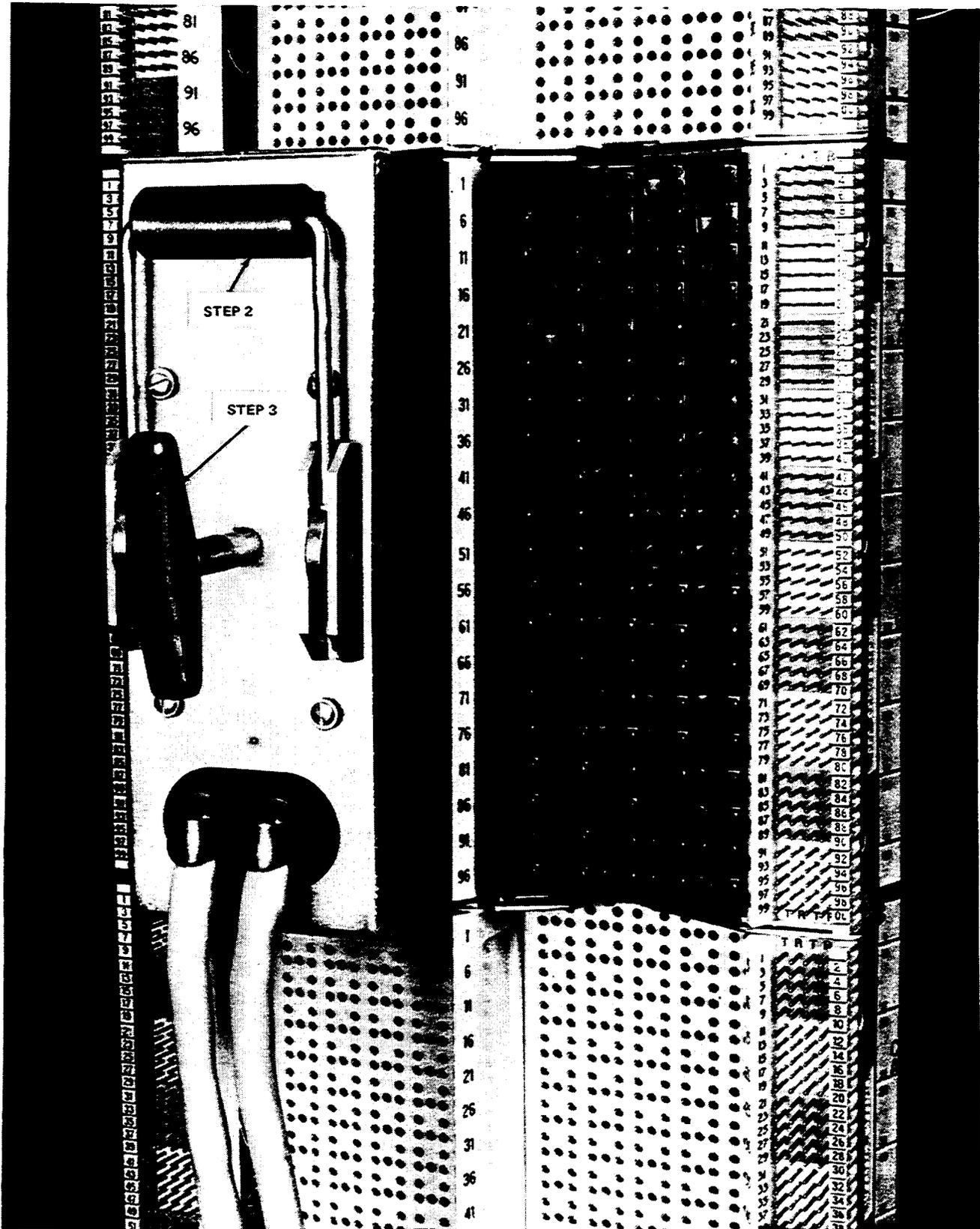


Figure 29—Removing U Test Connector

STEP	PROCEDURE
1	See Figure 29 for numbers that correspond to the following steps.
2	To remove the U test connector, swing the cam lever to the down position.
3	Grasp the handle and push in with a pivot motion to the left and then pull out on the handle to disengage the U test connector from the 309-type connector.

Warning: *The P2FL test cord is designed to support only its own weight. Do not use it as an adapter cord for access to the 4C-type protector units.*

7.08 The standard P2FL test cord (Figure 30) is used to test a single protected pair on the 309-type connector by utilizing the test ports on the 4C-type protector unit. This service verification is accomplished by bridging the 526A plug end of the test cord onto a 4C-type protector unit. In addition, when the protector unit is pulled to the detent position, the central office equipment path is disconnected while simultaneously providing a test path to the outside

plant and maintaining voltage protection. The P2FL test cord can be used to short a pair, ground a shorted pair, or ground the tip or ring side of a pair. Other standard plug-in cords that can be used with the 309-type connector for the associated test purposes are the W2GL (used to access a vacant protector unit position), W2GM (used for high voltage breakdown tests), and the W4CM (used for making manual and automatic Varley measurements).

Note: The P2FL test cord should not be used for service observing or interconnected with other testcords and unrelated test equipment.

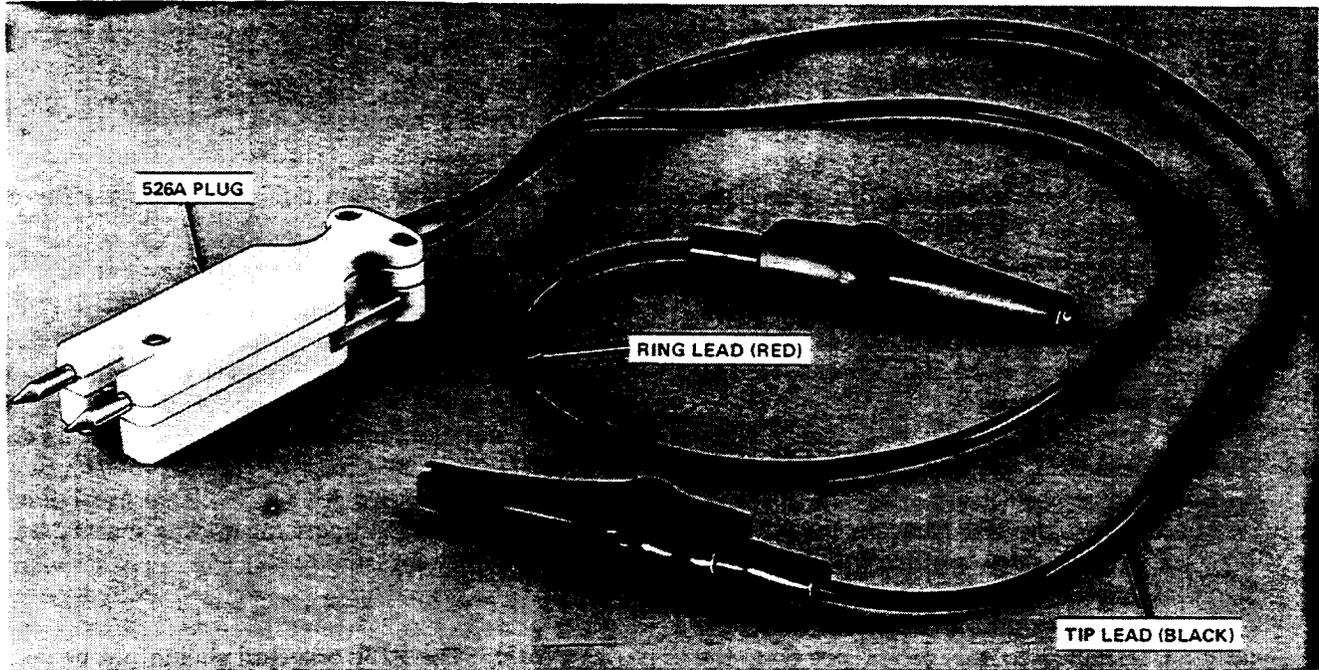


Figure 30—P2FL Test Cord

8. MINIATURE TEST/TALK SYSTEM

8.01 The miniature test/talk system can be arranged with the 309-type connector on the new frameworks. An 844690982 panel assembly, which accommodates four test/talk panels, is available for mounting in the frame vertical space devoted for one 309-type connector. The bracket is intended to contain one transmitter assembly, KS-21316, List 8, and, depending upon the options desired by the individual central office, up to three jack panels, KS-21316, List 3 (Figure 31). The test/talk assembly is mounted on the frame vertical between the sixth and seventh horizontal shelves (from the floor) of the ED-97754-74 LPCDF (Figure 32) and between the fifth and sixth horizontal members of the ED-97755-72 LPDPF. Drawing ED-6C111-10 will be updated to show the location and mounting of the miniature test/talk assembly on the LPCDF and LPDPF with 309-type connectors. Specifications are listed in drawings ED-6C110-10 and ED-6C111-11.

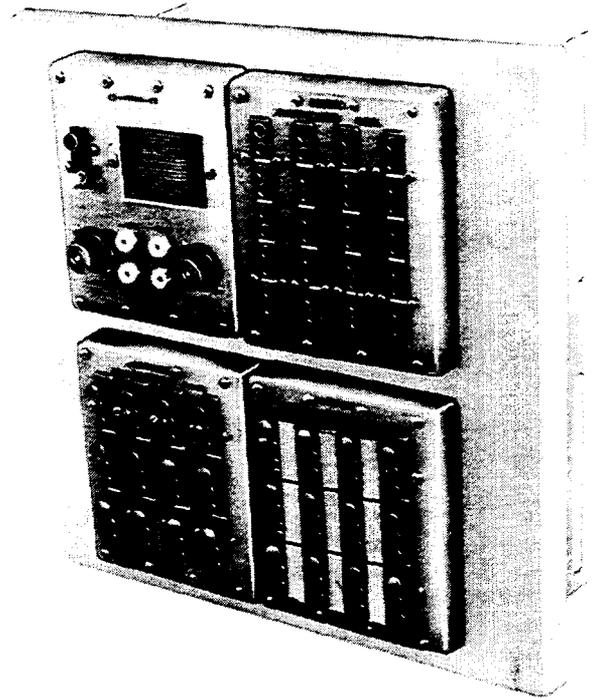


Figure 31—Miniature Test/Talk System Panel Assembly

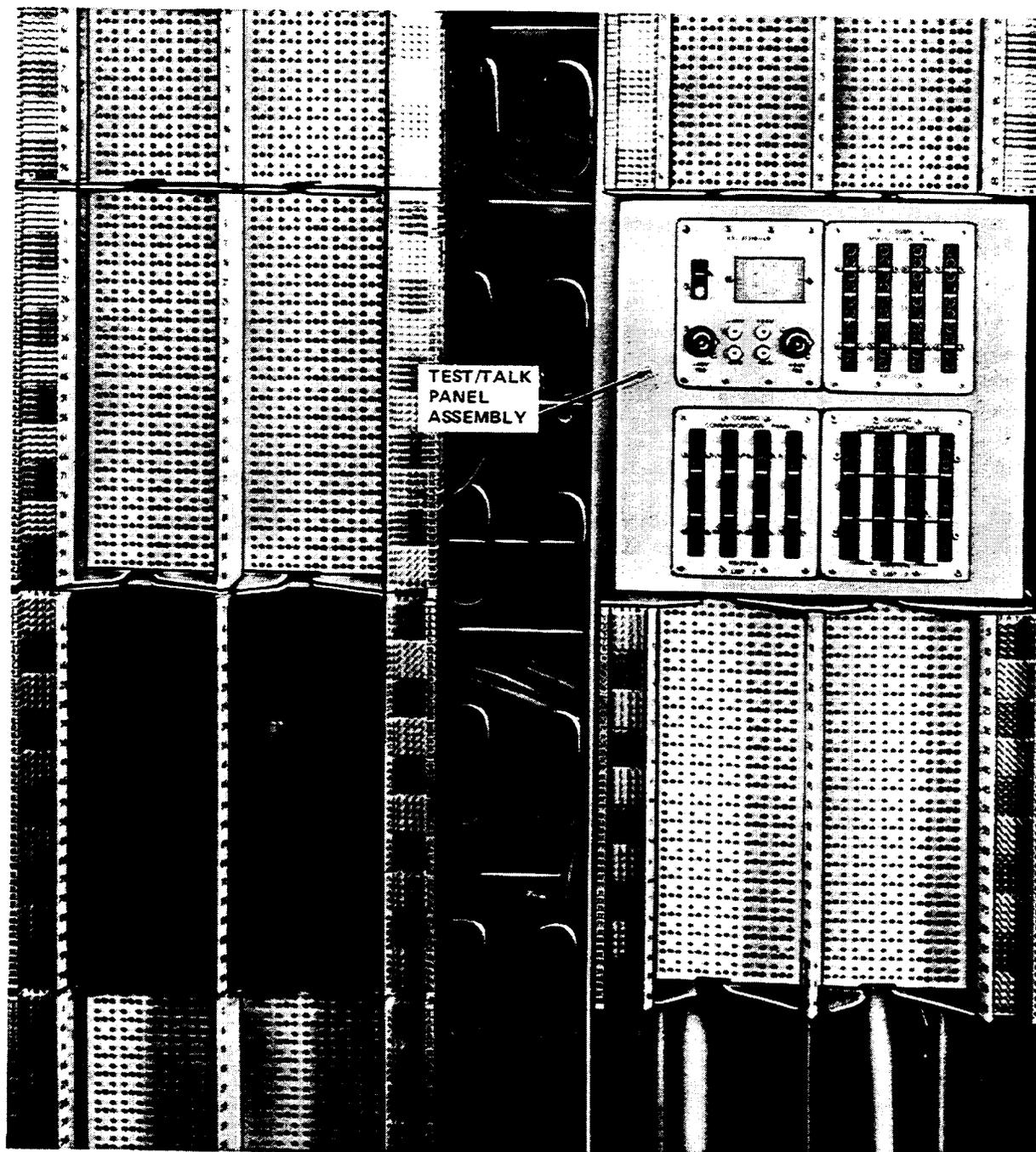


Figure 32—Mounted Miniature Test/Talk System

9. 89-TYPE CONNECTING BLOCKS

9.01 The new redesigned 89-type connecting blocks can be mounted on the bivertical arrangement with the 309-type connectors (Figure 33). Mounting brackets are available to accommodate four 89F2A-100 connecting blocks on each frame vertical.

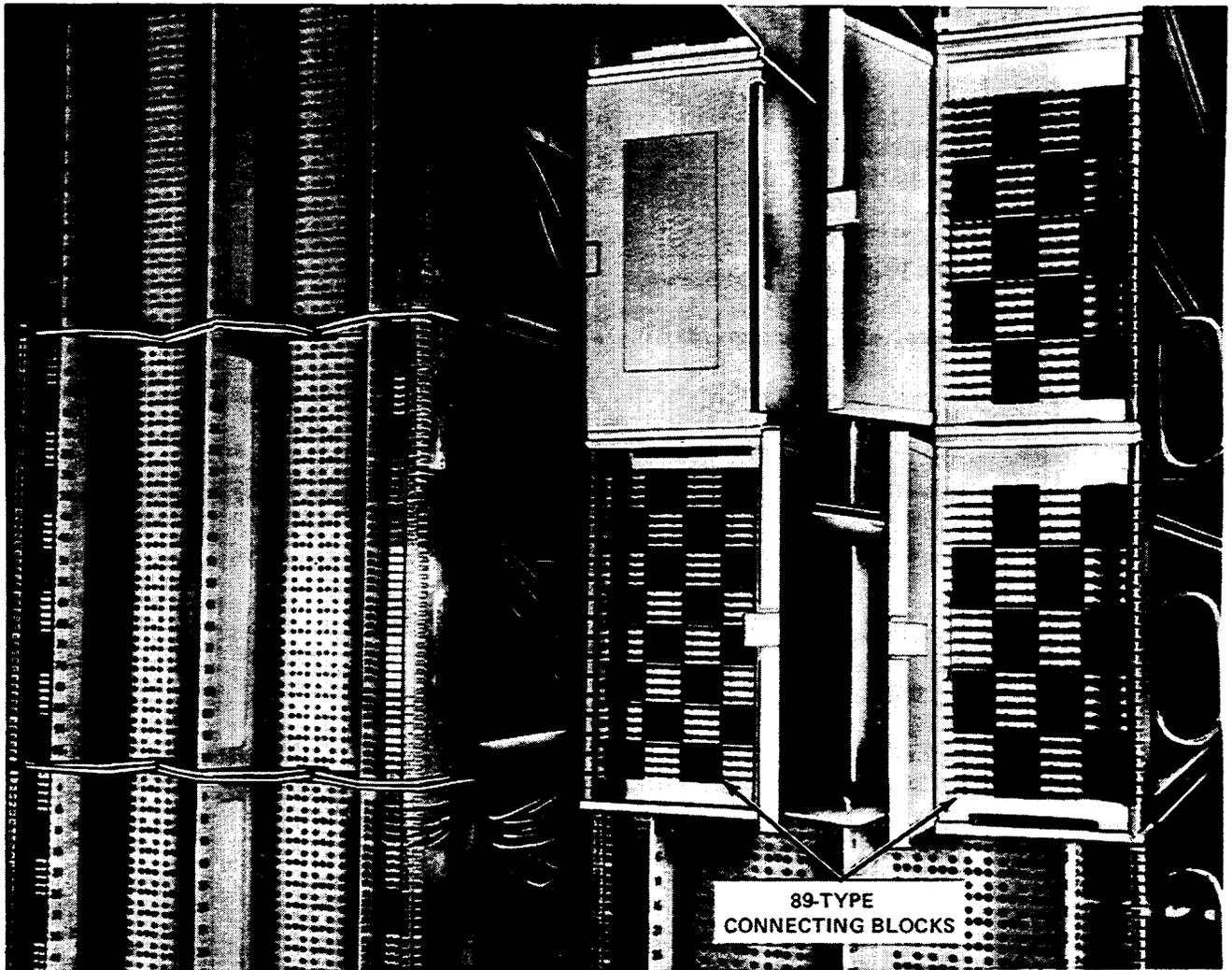


Figure 33—Mounted 89-Type Connecting Blocks

10. ASSOCIATED EQUIPMENT AND REFERENCES

ASSOCIATED EQUIPMENT

3- and 4-Type Protector Units (AT&T 201-208-100)
 Distributing Ring, Gray (Comcode 844694828)
 Distributing Ring, Orange (Comcode 844694836)

Test Equipment (AT&T 201-208-106)

U Test Connector (AT-9007) (Comcode 403031784)
 P2DB Test Cord (Comcode 101433852)
 P2FL Test Cord (Comcode 103105268)
 W2GL Test Cord (Comcode 101945590)
 W2GM Test Cord (Comcode 102490935)
 W4CJ Test Cord (Comcode 101898633)
 W4CM Test Cord (Comcode 101981603)

Warning Markers, Indicators, and Insulator (AT&T 201-208-106)

E Warning Marker (Comcode 400614202)
 E sign (Comcode 400359196)
 KS-6660 Indicator (Comcode 996698239)
 KS-16847 Indicator (Comcode 997726088)
 KS-16604 Insulator (Comcode 401299474)

REFERENCES

PRACTICE

TITLE

069-132-811 Punched or Wire Terminals (Not Having Notches or Perforations) — Method of Making and Removing Wrapped Connections

069-140-811 Soldered Connections Using Soldering Coppers — Method of Making and Removing

081-860-105 Transfer Stenciling Kits — Description and Use

201-208-100 3-, 4-, and 5-Type Protector Units — Description, Use, Maintenance, and Test Procedures

PRACTICE

TITLE

201-208-106 Test Equipment, Cords, Plugs, Warning Markers, Guards, Insulators, and Indicators — Description and Use—Distributing and Protector Frames

201-216-101 Miniature Test/Talk System — Description — Distributing and Protector Frames

201-216-102 Cords and Plugs — Description — Miniature Test/Talk System

201-216-801 Miniature Test/Talk System — Piece Parts and Replacement Procedures — Distributing and Protector Frames

201-219-101 Protector Frames — Description

201-219-501 Protector Frames — Inspections

201-220-101 Conventional Distributing Frames — Description

201-220-301 Terminal Strips — Method of Making Connections

201-220-501 Conventional Distributing Frames — Inspections

201-220-801 Terminal Strips — Repair Procedures

636-200-011 Marking Main Frames — Pair and Cable Numbers

916-559-770 Cable Terminating Facilities — Central Office Type — General

11. ISSUING ORGANIZATION

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