311/311L-Type Connectors
Description, Use, Installation, and Repair Procedures

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1. Overview

1.01 This practice covers the description, use, installation, and repair procedures for 311- and 311L-type connectors.

1.02 This practice is reissued to add new 311L-type connectors which are UL* Listed for applications where UL listing is desired, i.e., customer premises, commercial buildings, Local Area Networks (LAN) environments, etc.

1.03 This practice contains a **CAUTION** admonishment.

1.04 AT&T welcomes your comments on this practice. Your comments will aid us in improving the quality and usefulness of AT&T documentation. Please use the Feedback Form provided at the end of this practice.

1.05 Additional copies of this practice and any associated appendixes may be ordered from the AT&T Customer Information Center as follows:

- Call 1-800-432-6600

  or

- Complete Form IND 1-80.80 and mail to:

  AT&T Customer Information Center
  Attention: Order Entry Department
  2855 N. Franklin Road
  P.O. Box 19901
  Indianapolis, IN 46219-1999

1.06 These high-density, angled mounting connectors are used for terminating and protecting outside plant cables on conventional distributing frames.

1.07 The 311-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 office or customer premises equipment.

* Registered Trademark of Underwriters, Laboratories, Inc.

1.08 This practice is issued by:

Document Development Organization
AT&T Network Systems
2400 Reynolda Road
Winston-Salem, NC 27106-4696

2. Description

2.01 The 311/311L-type connector (Figures 1, 2, 3, 4, Table A and Table C), etc., measures 11 inches (27.94 cm) high by 3-1/4 inches (8.25 cm) wide (with 4-type protector units installed) and extends 6-1/2 inches (16.51 cm) from the vertical frame mounting bar at a 12.5-degree angle. This angled mounting configuration provides "semi" front access to the plug-in protector field while maintaining the total front access to both the test and cross-connect fields. This facilitates testing, jumper terminating, and protector unit administration. The 311/311L series of connectors are offered for convenience and ease of installation. All 311-type connectors have the same basic features. The exposed wires in the UL Listed connectors are enclosed in a metal casing.

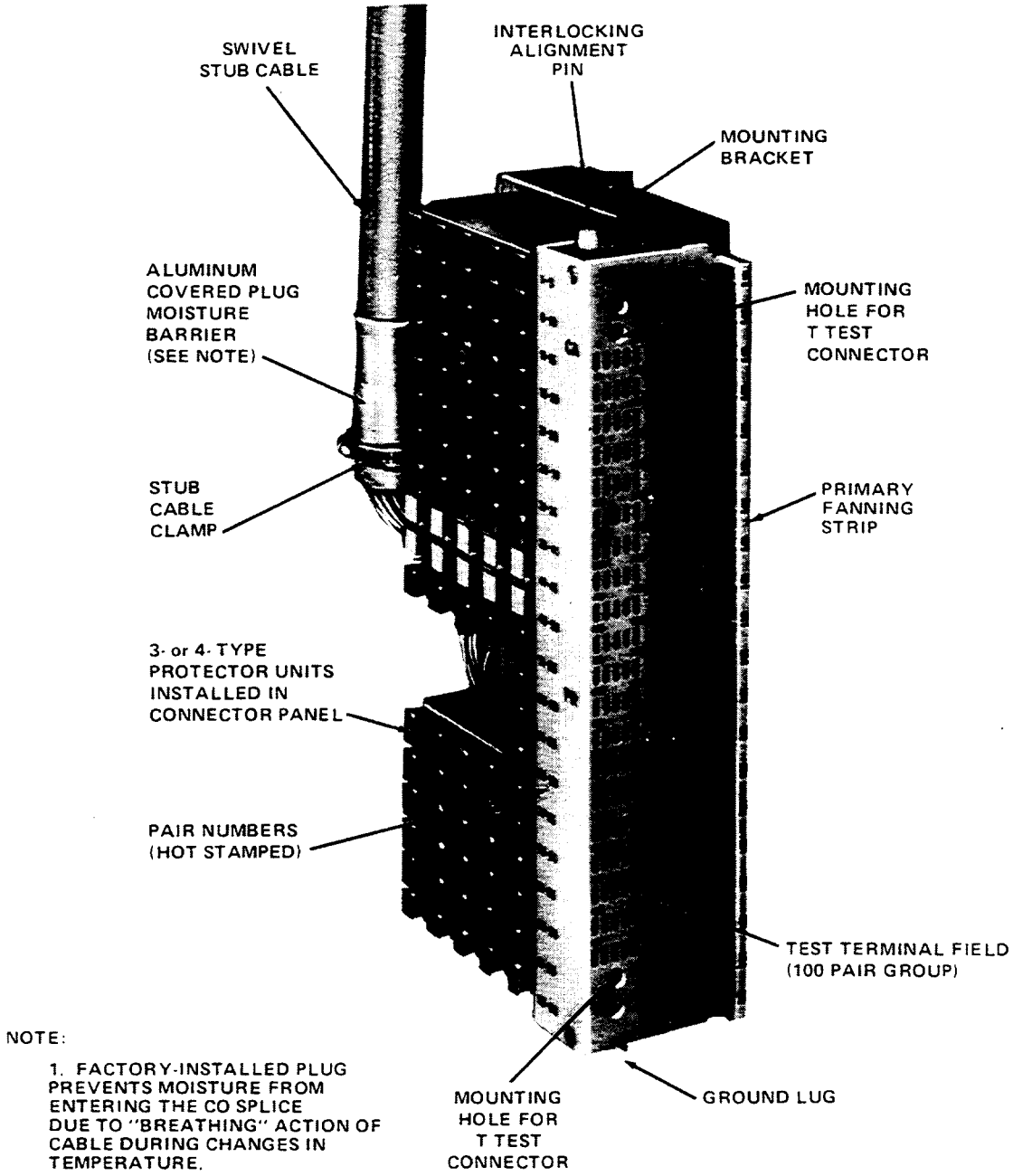

Figure 1. 311-Type Connector — Left Side View

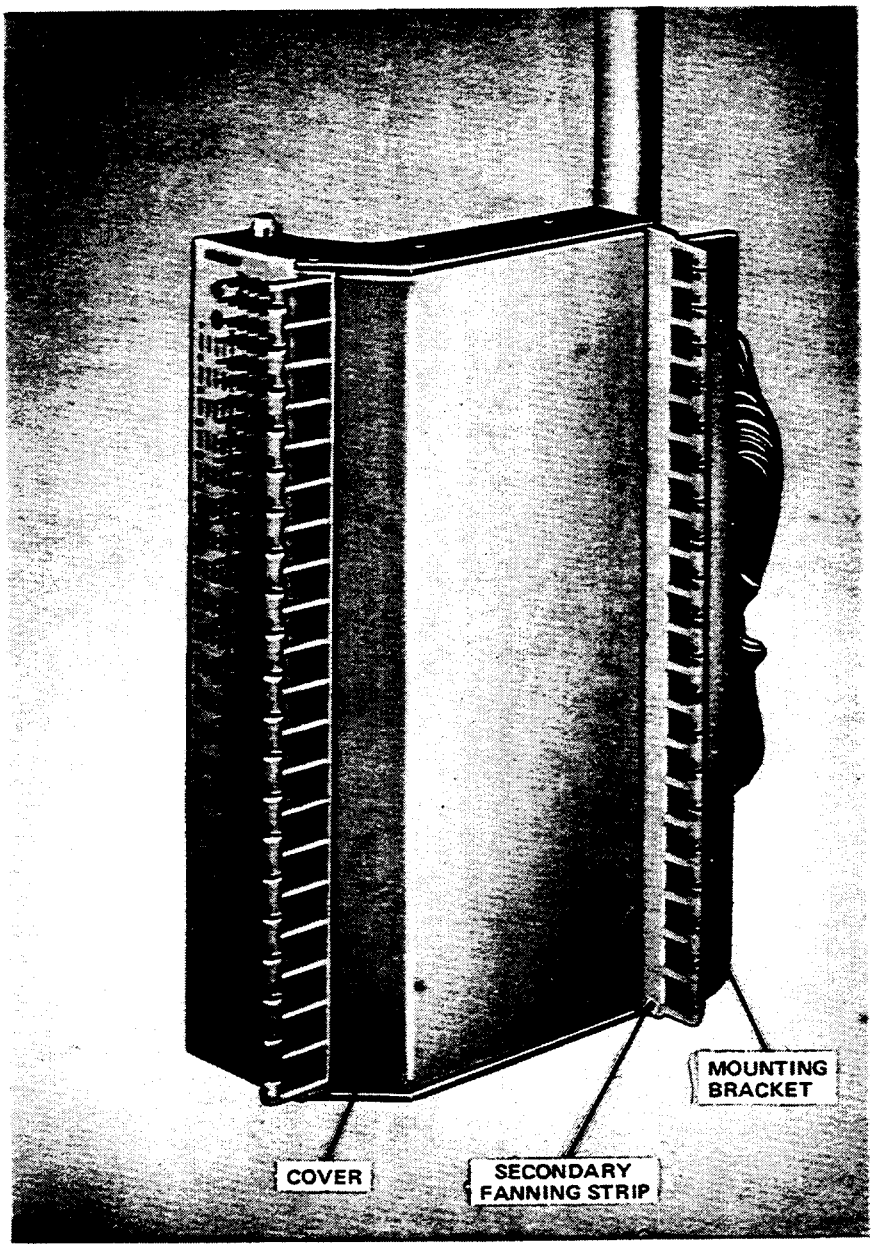

Figure 2. 311-Type Connector — Right Side View

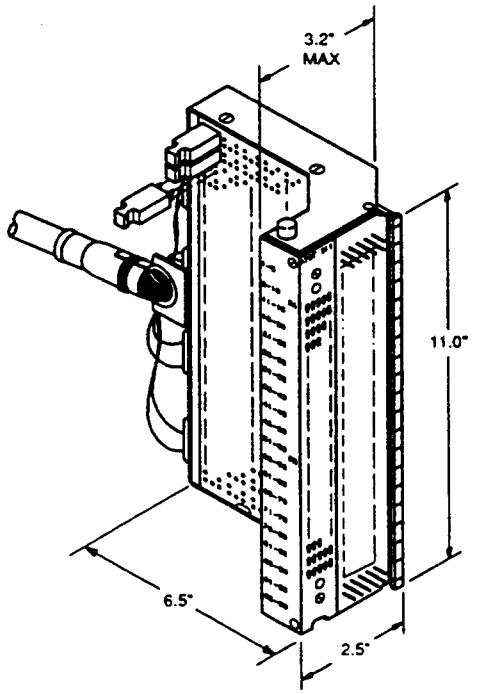

Figure 3. 311-Type Connector — Overall Dimensions

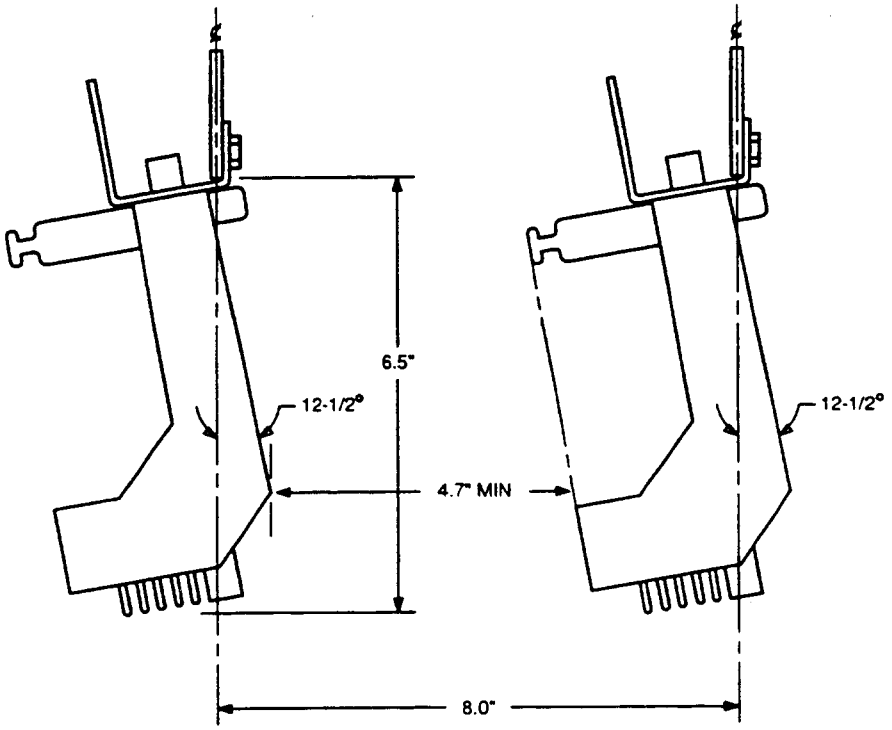

Figure 4. 311-Type Connectors — Top View

Table A. 311-Type Connector

Application	Cross-Connect Terminal Type	Stub Cable			Item Code	Comcode
		Wire Gauge	Length (Feet)(Meters)	Cabling Direction		
Outside Plant Facility Pairs	Single Wire Wrap	24 (0.5 mm)	30 (9.14 m)	Up/ Down (Swivel)	311A1-100-30	104403282
			50 (15.24 m)		311-A1-100-50	105356596
			80 (24.38 m)		311A1-100-80	105356604
			100 (30.48 m)		311A1-100-100	105356612
			150 (45.72 m)		311A1-100-150	105356620
			200 (60.72 m)		311A1-100-200	105356638
		22 (0.6 mm)	30 (9.14 m)		311B1-100-30	104403290
			50 (15.24 m)		311B1-100-50	105356646
			80 (24.38 m)		311B1-100-80	105356653
			100 (30.48 m)		311B1-100-100	105356661
			150 (45.72 m)		311B1-100-150	105356679
			200 (60.72 m)		311B1-100-200	105356687
Pair Gain Systems		No Stub			E1-100	104403308

Note: Other 311-type connector options, such as stubbed and preconnectorized with 710- or 711-type splicing connectors, are also available on a special basis. Please contact your AT&T sales representative for ordering information.

2.02 The 311-type connector is designed for use on conventional distributing frames. The left face has a single 5x20 array for 100 of the 3- or 4-type protector units.

2.03 Pair identification is hot stamped at the factory on the protector unit panel, cross-connect and test fields, and front and rear fanning strips for quick and positive installation requiring minimal field stenciling (cable/pair information only).

2.04 The 311-type connector has replaceable cross-connect terminals and long mounting slots to facilitate mounting. The ground system may be converted in the field to an isolated system [1A shunt (105570980) required). It has positive protection of the stub connectors at the frame mounting point.

2.05 The 311-type connectors have factory-connected, color-coded, 100-pair stub cable consisting of 22- (0.6 mm) or 24-gauge (0.5 mm) tinned-copper polyvinyl chloride (PVC) insulated conductors, mylar tape core wrapper, a corrugated aluminum shield under an olive gray colored outer PVC sheath, and an aluminum-covered moisture plug at the terminated end of the stub cable.

2.06 The 311L-type connectors have factory-connected, color-coded, 100-pair stub cable consisting of 26-gauge (0.4 mm) tinned-copper polyvinyl chloride (PVC) insulated conductors, mylar tape core wrapper, a corrugated bonded aluminum shield under an olive gray colored outer PVC sheath, and an aluminum-covered plug at the terminated end of the stub cable.

2.07 The stub cables are swivel mounted to accommodate either top or bottom cable access to the frame. The stub cables are offered in six standard lengths [30, 50, 80, 100, 150, and 200 feet (9.14 m, 15.24 m, 24.38 m, 30.48 m, 45.72 m, and 60.95 m)]. Longer stub cables are available on request.

2.08 Table A lists the applications, codes and specifications of the 311-type connectors.

2.09 The 311L-type connectors (UL Listed) are offered with 26-gauge (0.4 mm) stub cables only to facilitate UL's fusing (fuse length) requirements. A detailed description, available codes, and specifications for these units are provided in paragraphs 7.01 through 7.05.

2.10 The installation, marking, and testing requirements specified in Part 3 and 6 are appropriate for the 311L-type connectors.

2.11 Part 8 details special repair requirements which are unique to the 311L-type (UL Listed) connectors.

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 (12.7 cm) nor to a 5-inch (12.7 cm) 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 311/311L-Type Connector

3.05 The 311/311L-type connectors are installed on conventional distributing frames. AT&T 201-220-101 describes the conventional distributing frames.

3.06 The termination capacities of vertical main frames equipped with 311/311L-type connectors are shown in Table B.

Table B. 311/311L-Type Connector Termination Capacities

Height of Vertical Main Frame	No. of Terminations Per Vertical
8 feet (2.43 m)	700 Pairs*
8 feet (2.43 m)	800 Pairs*
11 feet 6 inches (3.5 m)	1000 Pairs†
12 feet 5 inches (3.78 m)	1200 Pairs‡
14 feet 5 inches (4.39 m)	1200 Pairs‡

* Capacity can be increased to 800 and 900 pairs per vertical on 8-foot (2.43 m) frames if ED-97754-74 Group one (8 feet) (2.43 m) ED-97754-74 Group two (8 feet 10 inches (2.69 m) frames are used.

† Capacity may be limited by size of cable ports to vault.

‡ A maximum of 1200 pairs is recommended for jumper operations.

3.07 Prior to installing 311/311L-type connector(s), proceed as follows:

(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 on a linen tag or glass tape and attach to cable prior to placing it through the floor to the cable entrance facility.

3.08 Install 311/311L-type connectors as follows:

(1) On the frame vertical, locate and mark a starting point (representing the bottom edge of the lowermost 311/311L-type connector). A minimum starting point of 6-5/8 inches (16.82 cm) from the floor level is recommended.

(2) Align the bottom edge of the template (packaged with the connector) with the marked starting point.

(3) Mark the upper edge of the template on the frame vertical.

(4) With the template in place, visually determine that a mounting hole is available within each slot of the template or if two holes are available in either slot (Figure 5). If not, a mounting hole must be drilled and tapped and located within a slot. Drill and tap a 12-24 NC thread. Two screws furnished with connector shall be used to mount each connector for adequate grounding purposes. Do not use screws longer than 1/2 inch (1.27 cm).

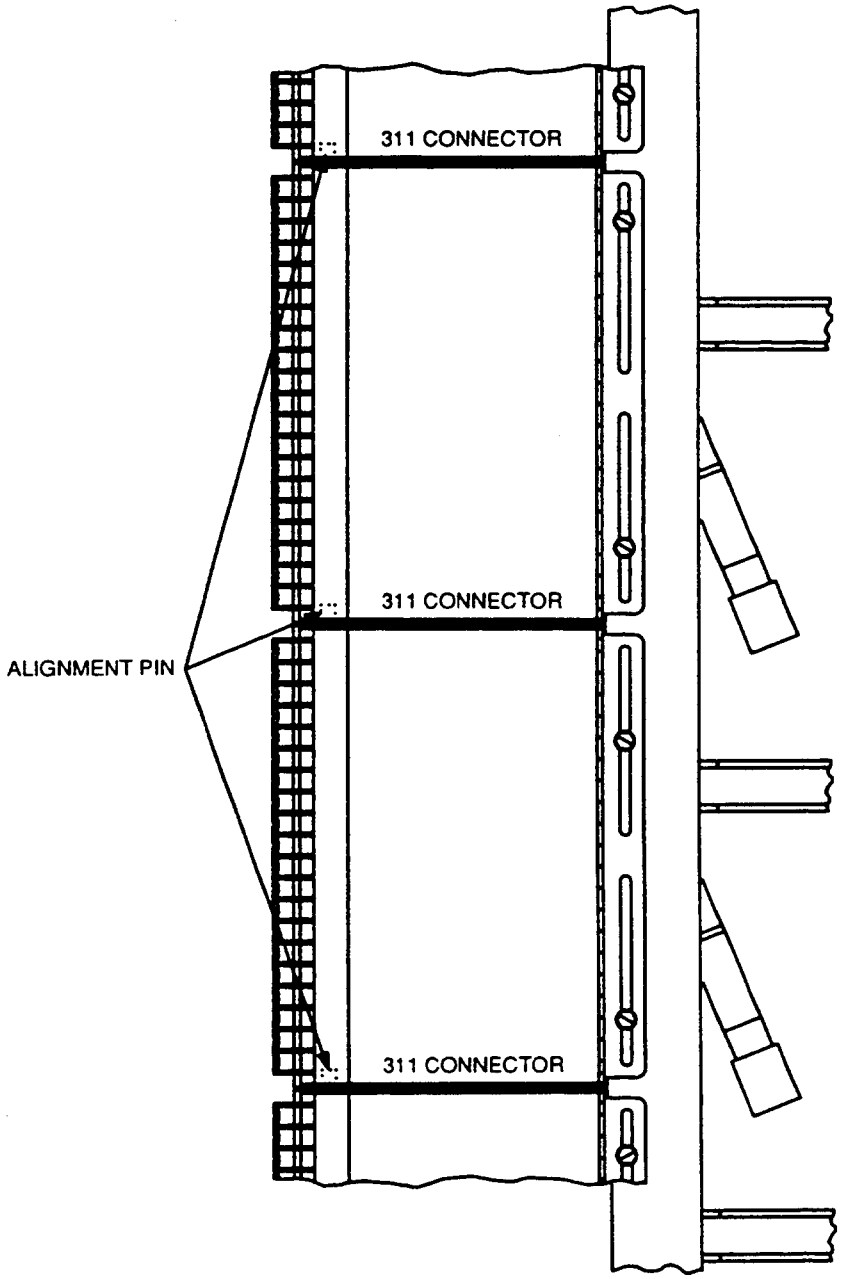

Figure 5. Mounting Arrangement for 311/311L-Type Connector (Existing Mounting Holes)

(5) Remove template from the frame vertical and relocate to next connector mounting position, aligning the bottom edge of the template with the mark previously made in Step 3.

(6) Repeat Steps 4 and 5 to ensure that each connector has two mounting holes.

⇒ **NOTE:**
When a mounting hole is added to the frame vertical, it is important that it be located 3/8 (.95 m) inch in from the frame vertical edge to ensure that all mounting holes are in alignment.

(7) Install the first connector; do not tighten screws. Continue placement of the balance of the connectors until the vertical is filled with the desired number of connectors. Make sure that all alignment pins on the connector mate with the corresponding mounting holes for interlocking of the connectors and tighten screws.

(8) Neatly arrange the stub cables of all connectors on the vertical mounting bar against the transverse arms of the frame. Lash the stub cables to these transverse arms in a neat manner using lacing twine or cable ties.

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

3.09 The 311-type connector can be grounded to the frame in the standard arrangement or converted to an isolated ground. The method of converting the ground shunt to an isolated ground system is shown in Figure 6.

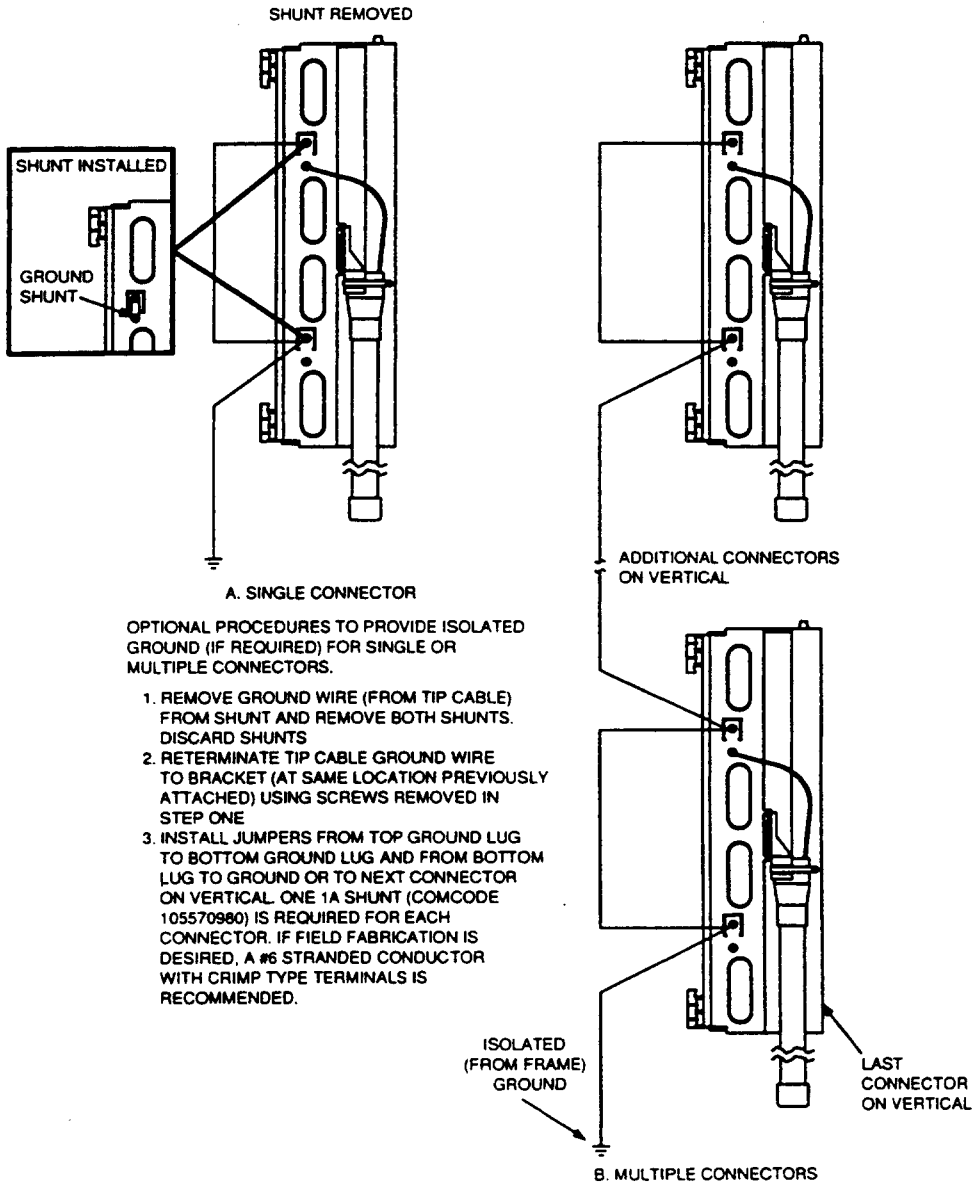

Figure 6. Converting to Isolated Ground System

Marking the 311-Type Connector

3.10 Use the B or W transfer stenciling kit, as described in AT&T 081-860-105, for marking the cable and pair numbers. The ***MERLIN EXPRESS**** lettering machine can also be used for marking the cable and pair numbers. The 311-type connector is marked in a manner similar to that shown in Figure 7.

* Registered Trademark of Varitronics System, Minneapolis, MN 55440

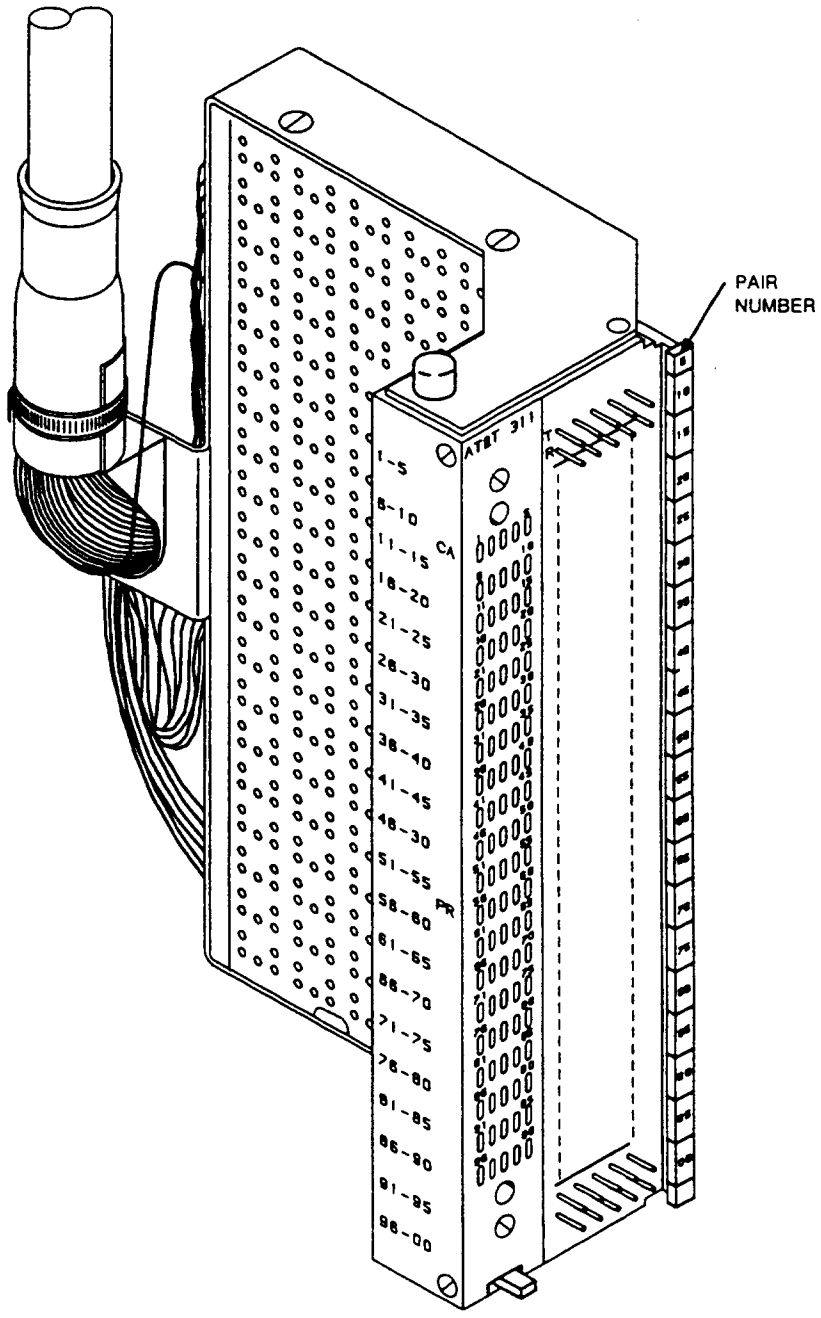

Figure 7. Marking Cable and Pair Numbers

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:

Number	Title
AT&T 069-132-811	*Punched or Wire-Type Terminals (Not Having Notches or Perforations) Method of Making and Removing Wrapped Connections*
AT&T 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). Part 8 details special repair requirements which apply to the 311L (UL Listed) connectors.

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 (10.16 cm) E screwdriver
—	Off-set screwdriver
—	Wrench, 5/16-inch (.79 cm) box or open-ended
401787726	Cable ties
KS-6320	Orange stick
KS-16748	Inserter
—	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 311-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 8), proceed as follows:

(1) Insert a screwdriver between the cover and fanning strip (Figure 9) and remove the cover (Figure 10).

(2) Use a screwdriver to remove two screws from the side cover (Figure 11), pull open the front panel (Figure 12), and then remove the side cover (Figure 13).

(3) On the front of the cross-connect panel, tag and remove the cross-connection(s) from the terminal to be replaced.

(4) Rotate the front panel (Figure 14) to gain access to the rear of the panel.

(5) Tag and unwrap the wire(s) from the terminal to be replaced (Figure 15).

(6) Using the B long-nose pliers, remove the damaged or broken terminal from the rear of the cross-connect panel.

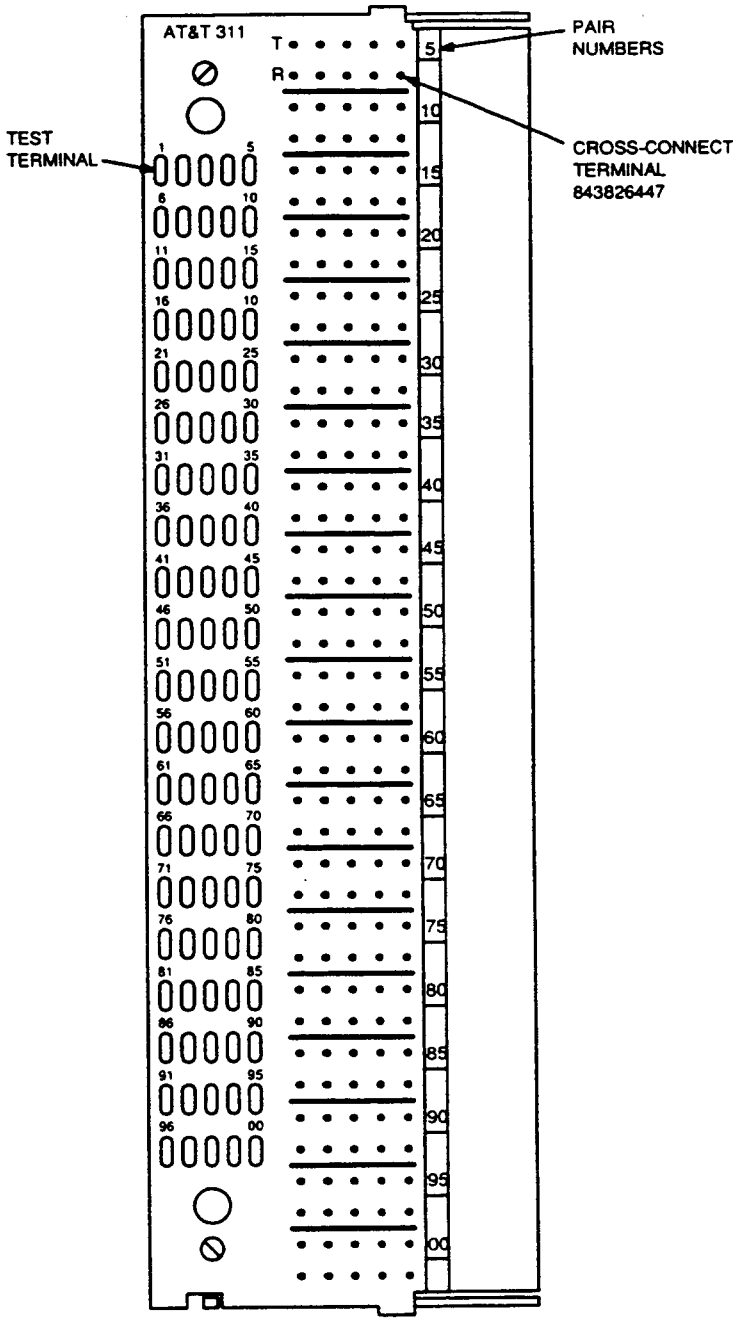

Figure 8. 311-Type Connector, Front View

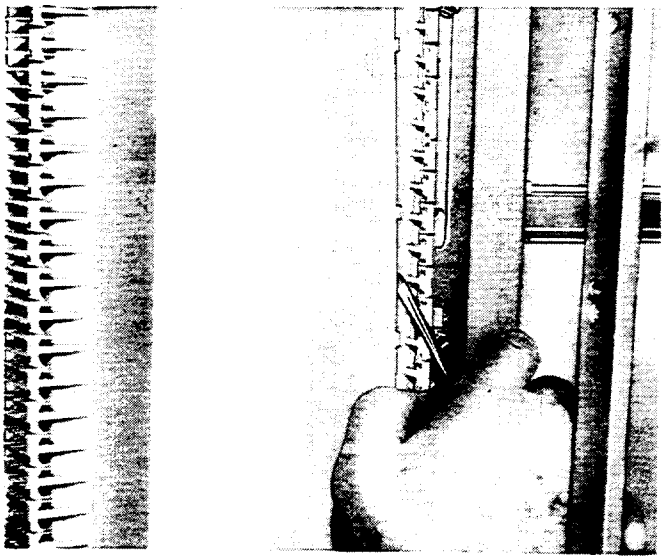

Figure 9. Inserting Screwdriver Between Cover and Fanning Strip

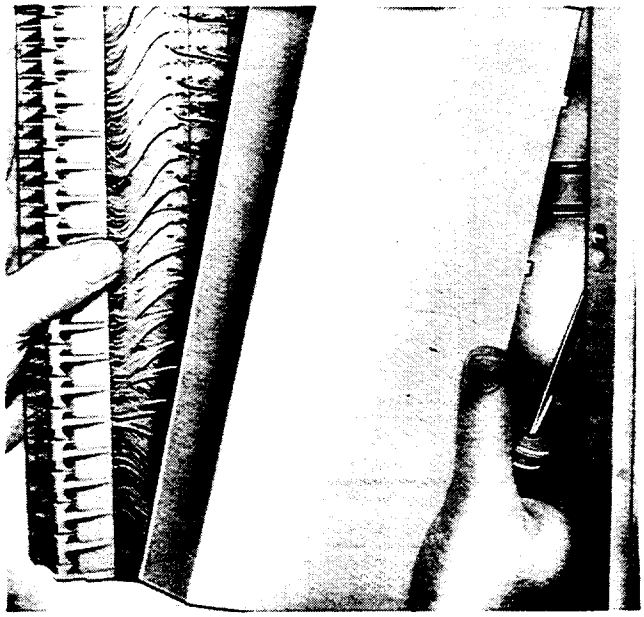

Figure 10. Removing Cover

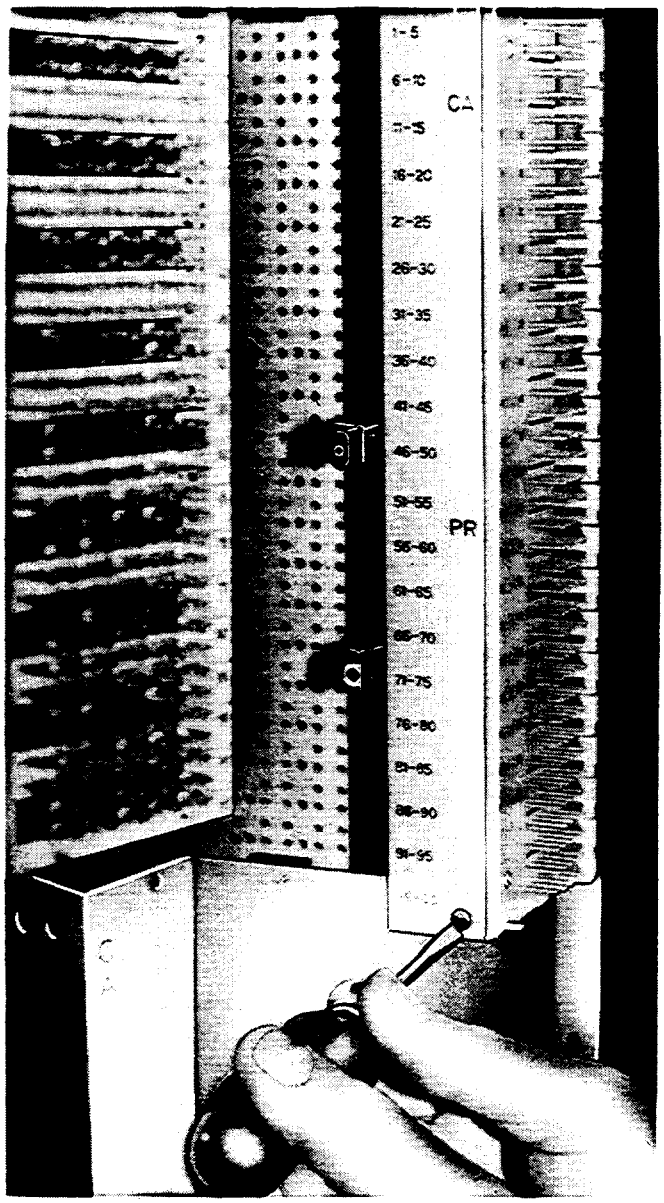

Figure 11. Removing Side Cover

Figure 12. Opening Front

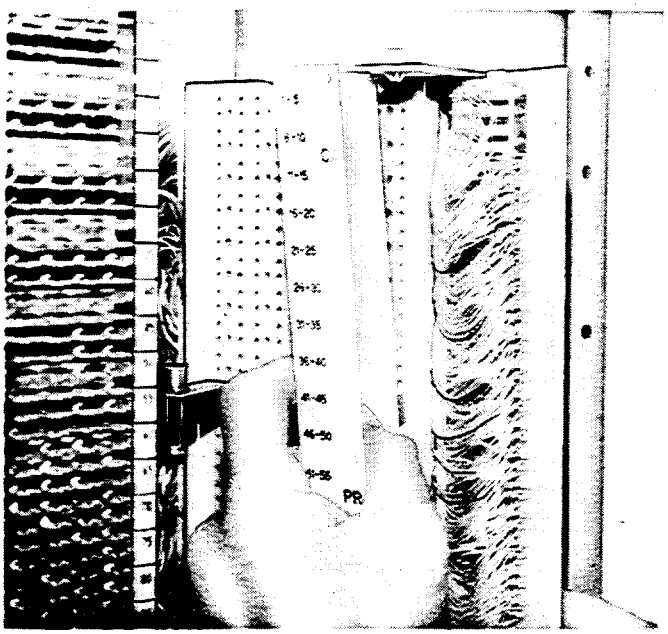

Figure 13. Removing Cover

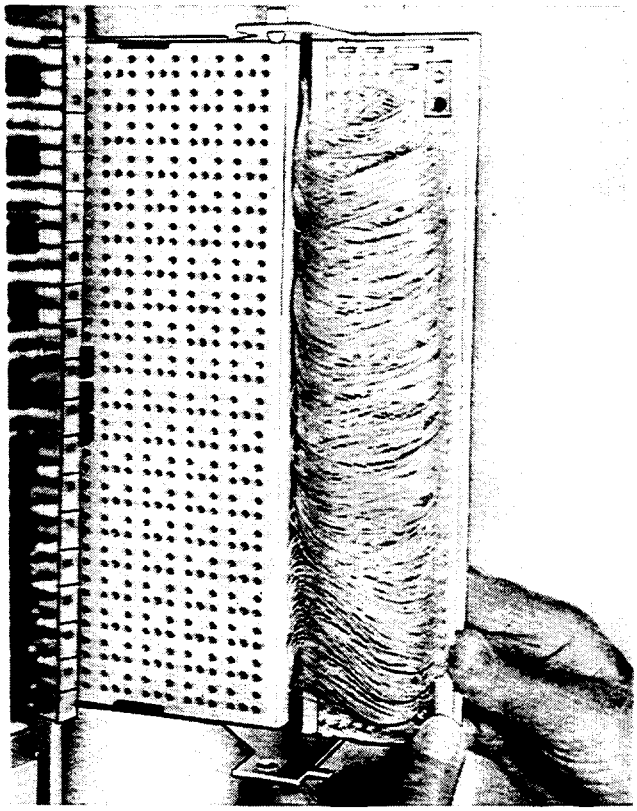

Figure 14. Front Panel Fully Rotated to Expose Terminals

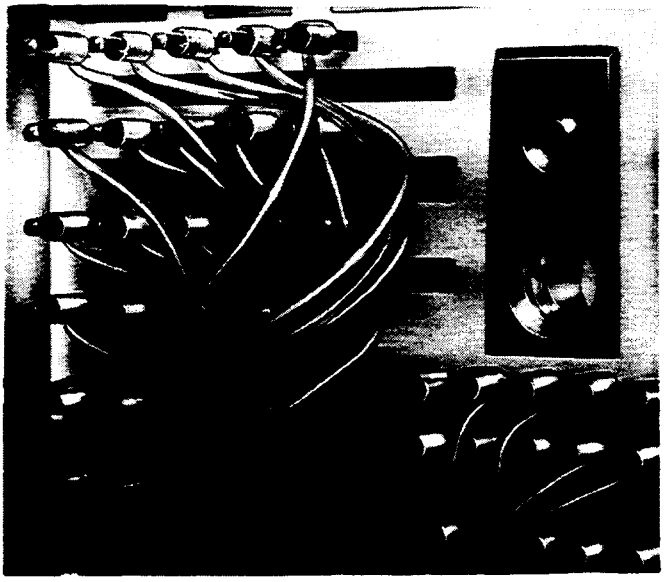

Figure 15. Rear View of Terminals

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 wire(s) to the new terminal at the rear of the panel.

Note: Prior to making connections to the terminal, refer to paragraph 2.21.

(4) Rotate the cross-connect panel to its original position and attach the cover removed in paragraph 2.24, Step 1.

(5) Reconnect the cross-connection(s) to the new terminal.

Note: Prior to making connections to the terminal, refer to paragraph 2.21.

Ground Terminal

4.09 To remove the 814648622 (P-46D862) ground terminal (Figure 16), proceed as follows:

(1) Follow the procedure outlined in paragraph 2.24, Steps 1 through 5.

(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.

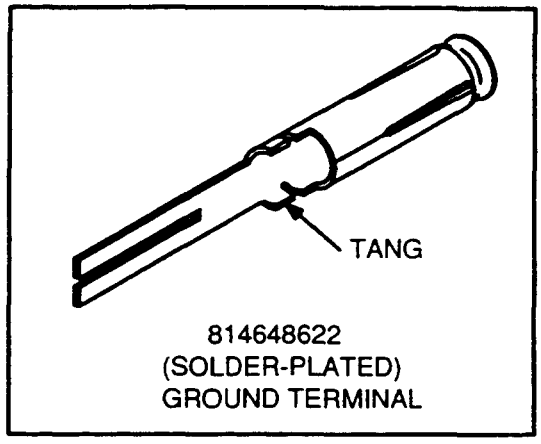

Figure 16. Ground Terminal (P-46D862)

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.

(7) Remove the protector unit.

Connector Panel Tip or Ring Terminal

4.11 To remove the 842360976 connector panel tip or ring terminal (Figure 17), proceed as follows:

(1) Follow the procedure outlined in paragraph 2.24, Steps 1 and 2.

(2) Using a wire unwrapping tool, remove the wire(s) from the terminal to be removed.

(3) Follow the procedure outlined in paragraph 2.26, Steps 3 and 4.

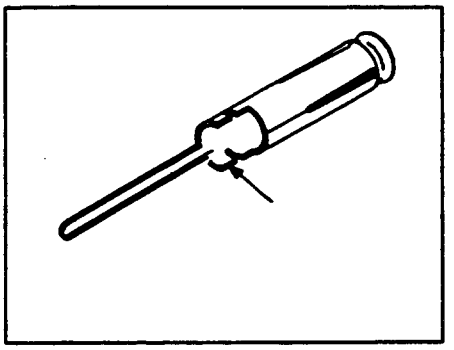

Figure 17. Tip or Ring Terminal

4.12 To replace the 842360976 connector panel tip or ring 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) Reconnect all leads to the terminal.

Note: Prior to making connections the terminal, refer to paragraph 2.21.

(7) Remove the protector unit.

5. Repair of Broken or Damaged Wire Conductors

5.01 To repair a broken or damaged wire conductors leading from the moisture plug of the stub cable, proceed as follows:

(1) Remove side cover.

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

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

(4) 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.

(5) Rerun the new length of wire back to the corresponding terminal.

(6) Reconnect the wire conductor to the terminal.

6. Testing

Protector Units

6.01 The 3- and 4-type protector units and 5-type continuity only plug-ins are used with all 311-type connectors both standard and UL to provide electrical protection. The protector units are ordered separately from the connectors. The 3- and 4-type protector units are described in AT&T 201-208-100.

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

6.03 Protector units with gold-plated pins should be used with connectors containing gold-plated socket terminals (that is, 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.

CAUTION:
UL Listed 5-pin modules are to be used in UL Listed 311L Listed Connectors.

6.04 Before installing the 3-, 4-, or 5-type protector units onto the connectors, each unit may be tested. The KS-20100, L5 test set (Figure 18) 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 19) 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 AT&T 201-208-100.

Note: The jacks (receptacles) for the operator units in the 303-, 305-, 307-, 309-, 310-, 310M-, and 311-type connectors have reversed tip and ring orientation from the 302- and 308-type connectors (see Figures 20 and 21).

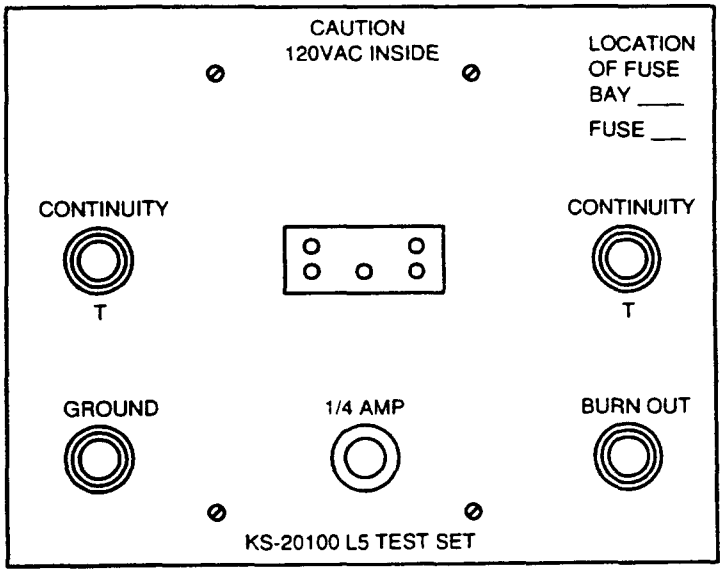

Figure 18. KS-20100, L5 Test Set

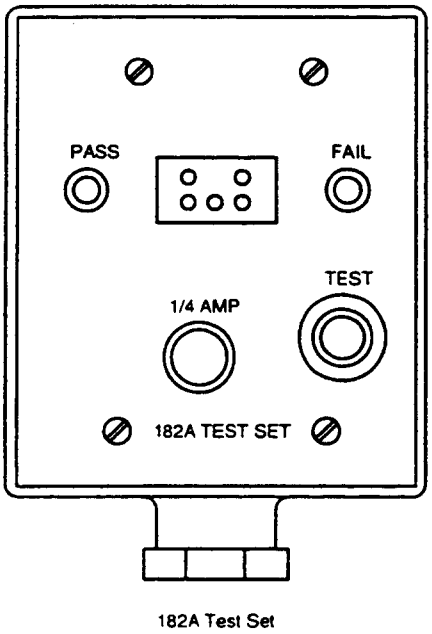

Figure 19. 182A Test Set

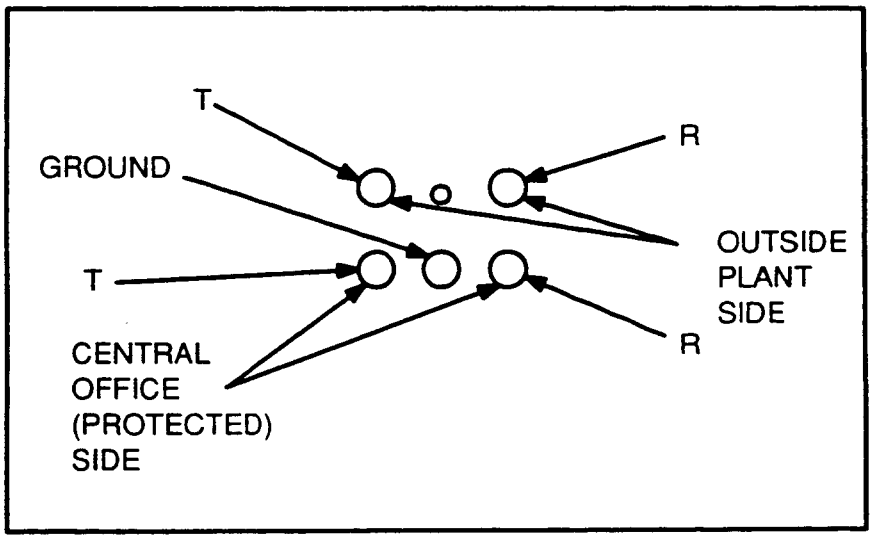

Figure 20. Jack for Protector Unit on 302- and 308-Type Connectors

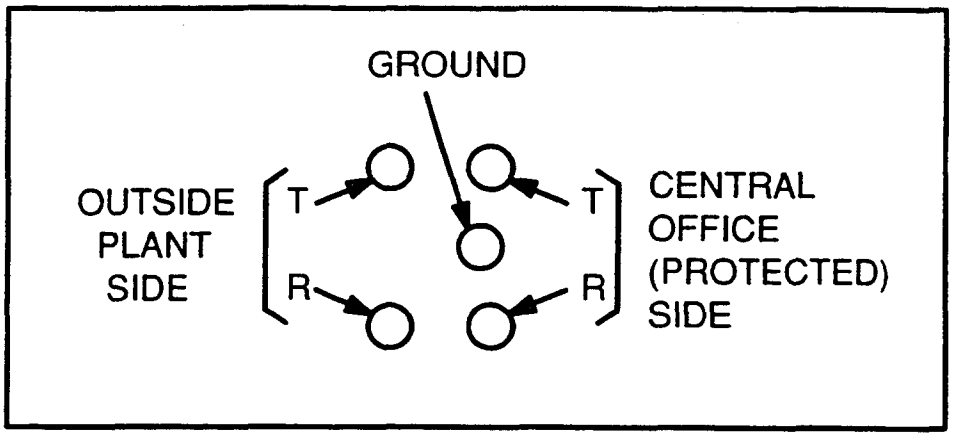

Figure 21. Jack for Protector Unit on 303-, 305-, 307-, 309-, 310-, 310M, and 311-Type Connectors

Test Connectors, Cords, Plugs, Warning Markers, Guards, Insulators, and Indicators

6.05 The T test connector and the pick test panel and cords and plugs may be used with the 311-type connectors for testing purposes. Warning markers, guards, insulators, and indicators are used on special service circuits to provide additional visibility and protection. See AT&T 201-208-106 for description and use of these items.

6.06 The T test connector (Figures 22 and 23) is a 100-pair test connector that is used for making multiple pair tests on the 311-type connector.

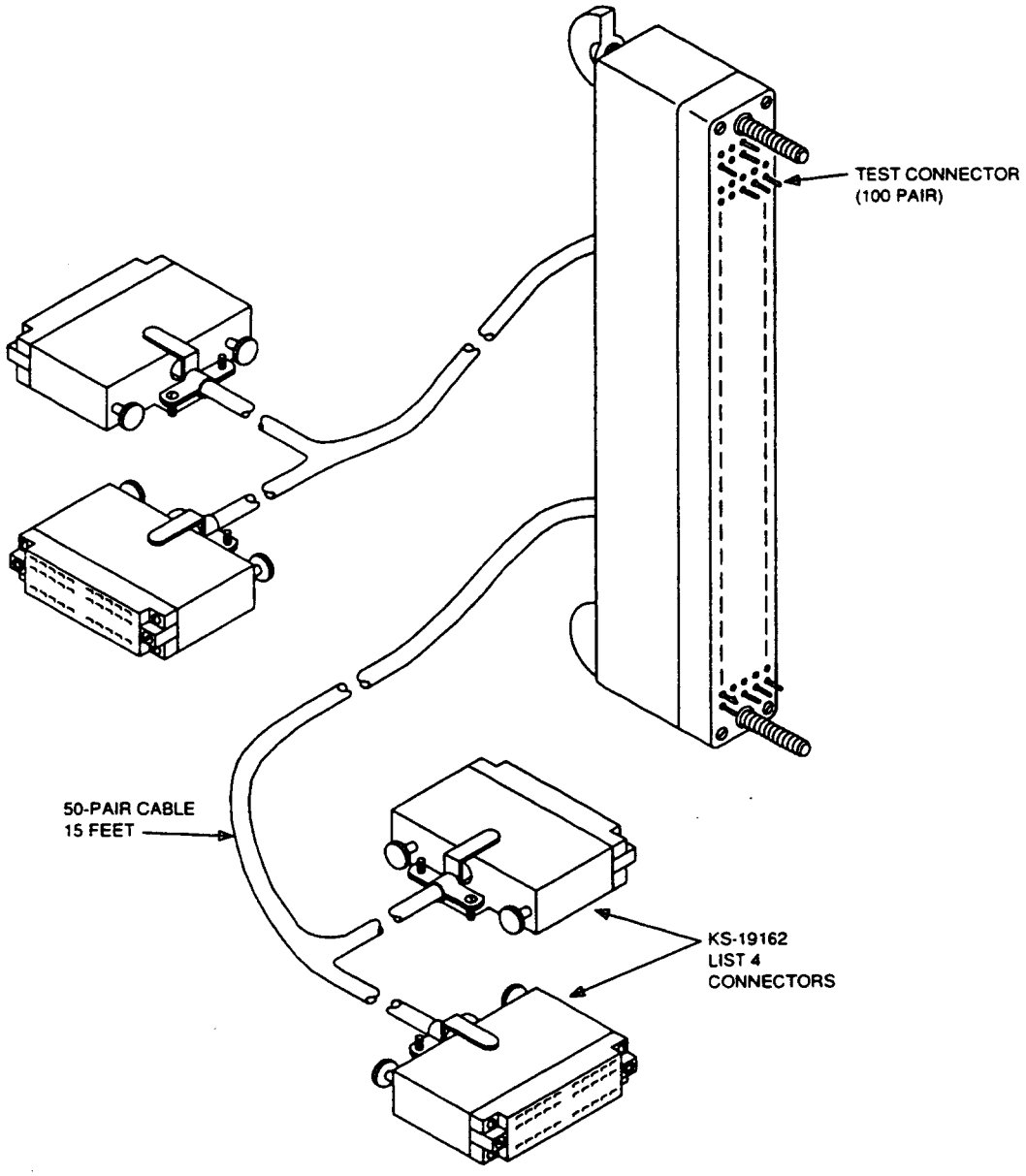

Figure 22. T Test Connector (AT-8987)

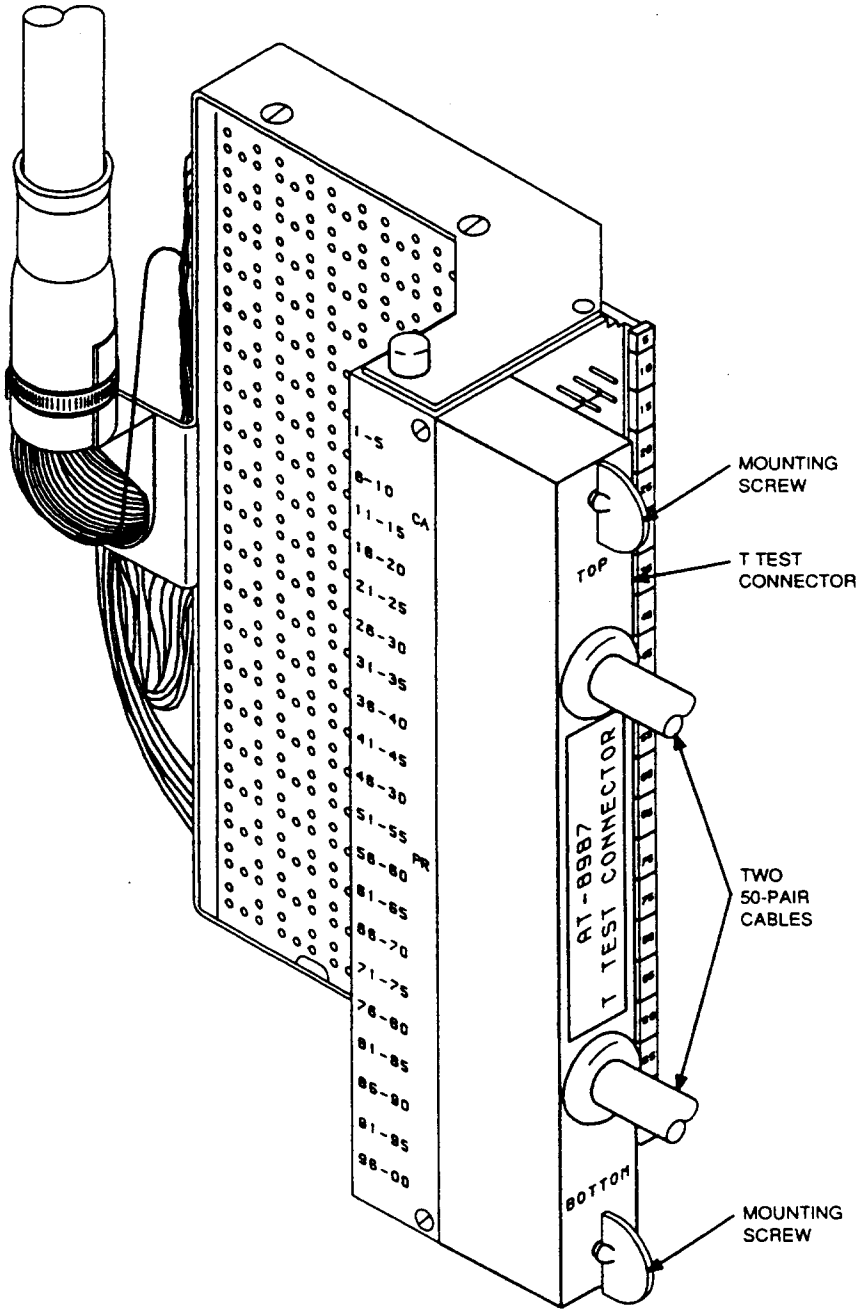

Figure 23. T Test Connector (AT-8987) Mounted on a 311-Type Connector

6.07 A separate pick test panel assembly (Figure 24) is furnished with the T test connector. When in use, the four KS-19162, L4 connectors are attached to the pick test panel, tone is applied, and a B test point is used to identify individual pairs.

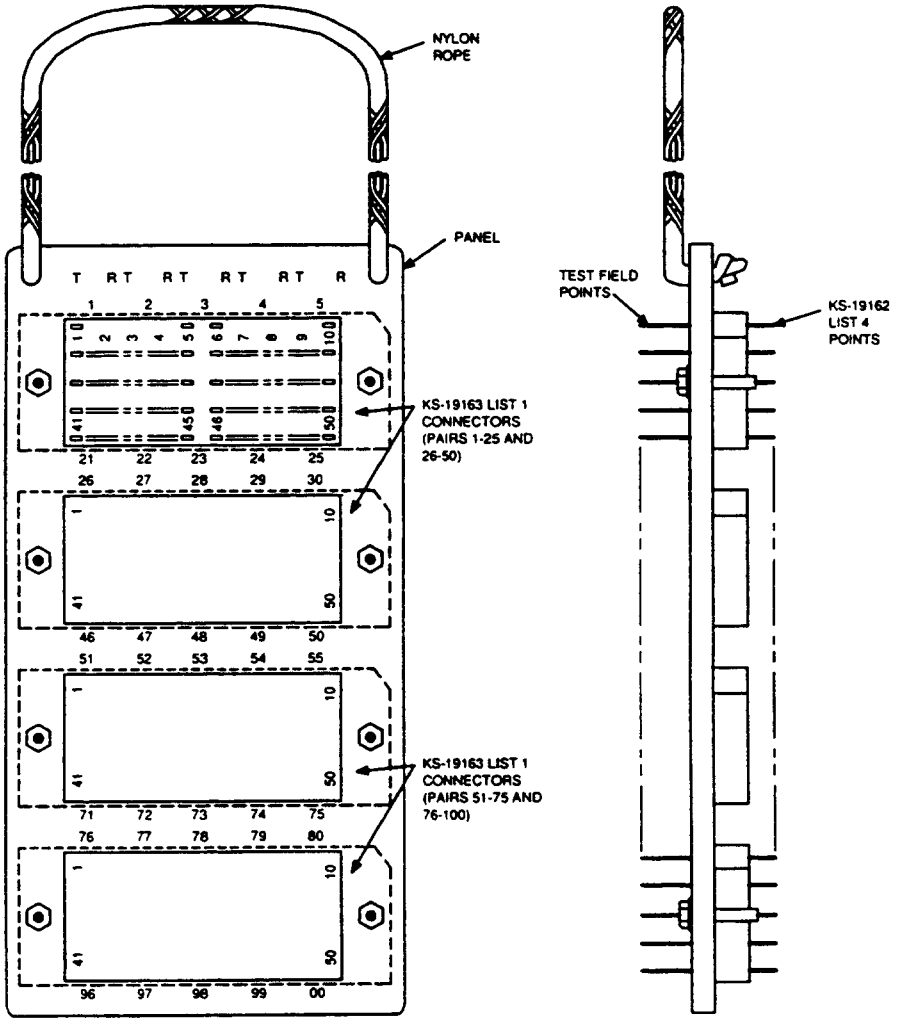

Figure 24. Pick Test Panel Assembly

6.08 The P2FM test cord (Figure 25) is used to short the tip and ring or to ground the tip and/or ring of an individual cable pair by inserting the plug end in a pair of recessed test terminals on the 311-type connector.

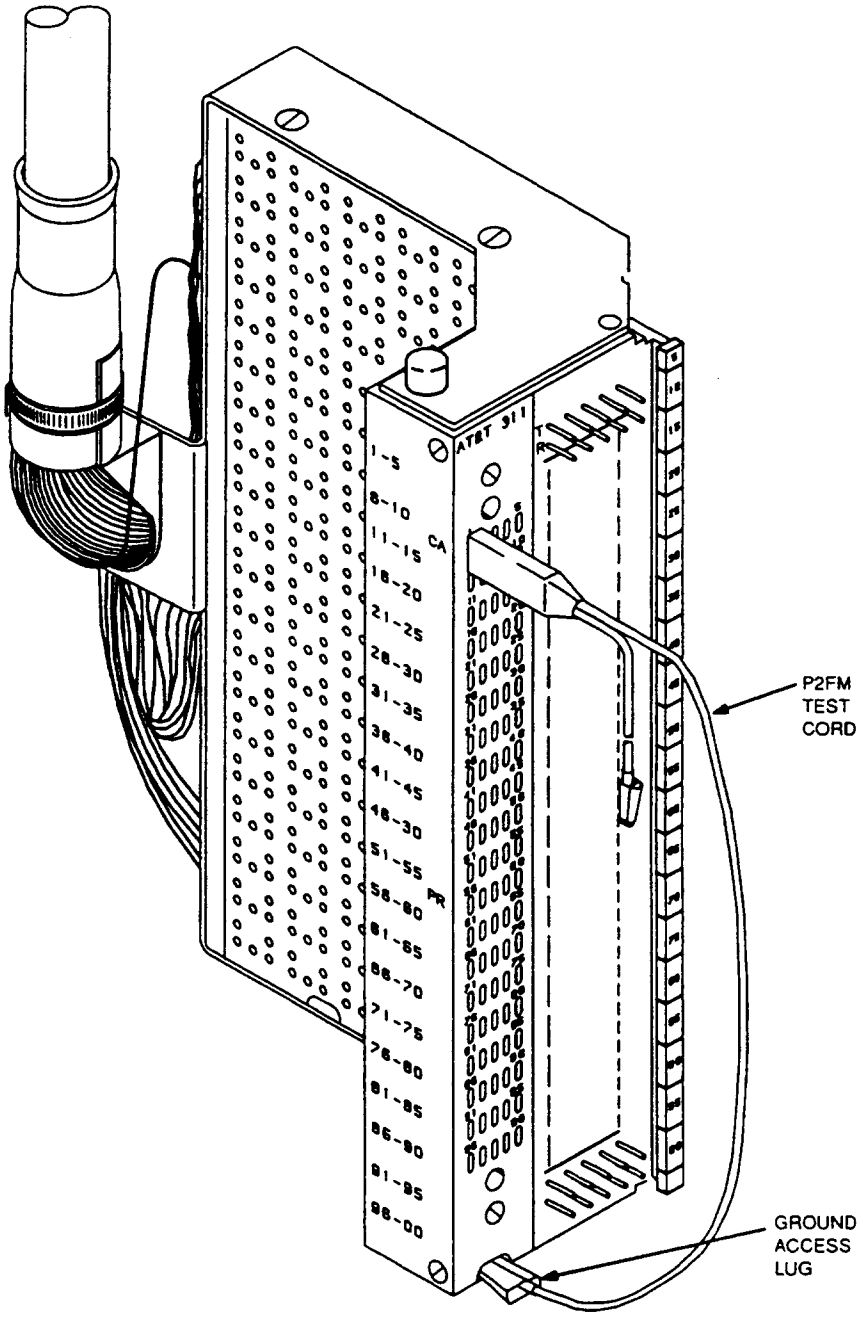

Figure 25. P2FM Test Cord (For Testing Individual Pairs on a 311-type Connector)

7. 311L-Type (UL Listed) Connectors

7.01 The 311L-type connectors (Table C) have been UL Listed for use on conventional distributing frames in a Building Entrance Protection environment, i.e., customer premises, commercial buildings, Local Area Networks (LAN), etc. They may, however, be used in any environment (including telephone equipment central offices or COs) where UL Listing is either desired or required. They are intended for use in large pair cross-connect systems (conventional DFS) and comply with the 1990 National Electrical Code which mandates UL Listing of all telephone network products that come under UL Specification 1863. Only UL Listed 5-pin plug-in protection units should be used with these UL Listed connectors.

⇒ NOTE:
The UL testing and subsequent listing of these products were predicated upon their use with conventional distributing frame designs which incorporate access to building ground directly through the frame ironwork and integrated ground bar arrangement. Use with any other ground arrangement may not comply with UL requirements.

7.02 The 311L-type connectors conform with all the characteristics of the 311-type connectors as specified in paragraphs 2.01 through 2.11 of this practice. Although most outward appearances are identical (Figure 26), there are several physical characteristics which are unique to these products.

7.03 The UL Listed 311L-series connectors are all equipped with 26-gauge (0.4 mm) stub cables to facilitate UL's fusing (fuse length) requirement. The stub cables are attached to the connector with a special swivel type metal coupling (Figure 27) which encases all the individual cable conductors. The loose wire conductors inside the connector (between the swivel coupling and the appropriate outside plant terminal of the protector panel) serves as the fuse length.

7.04 As in other Building Entrance Protector designs, the loose fusible length conductors are encased with a metal side cover (Figure 28) to form a fusing chamber and prevent any arcing or fusing activity from affecting adjacent equipment or terminations.

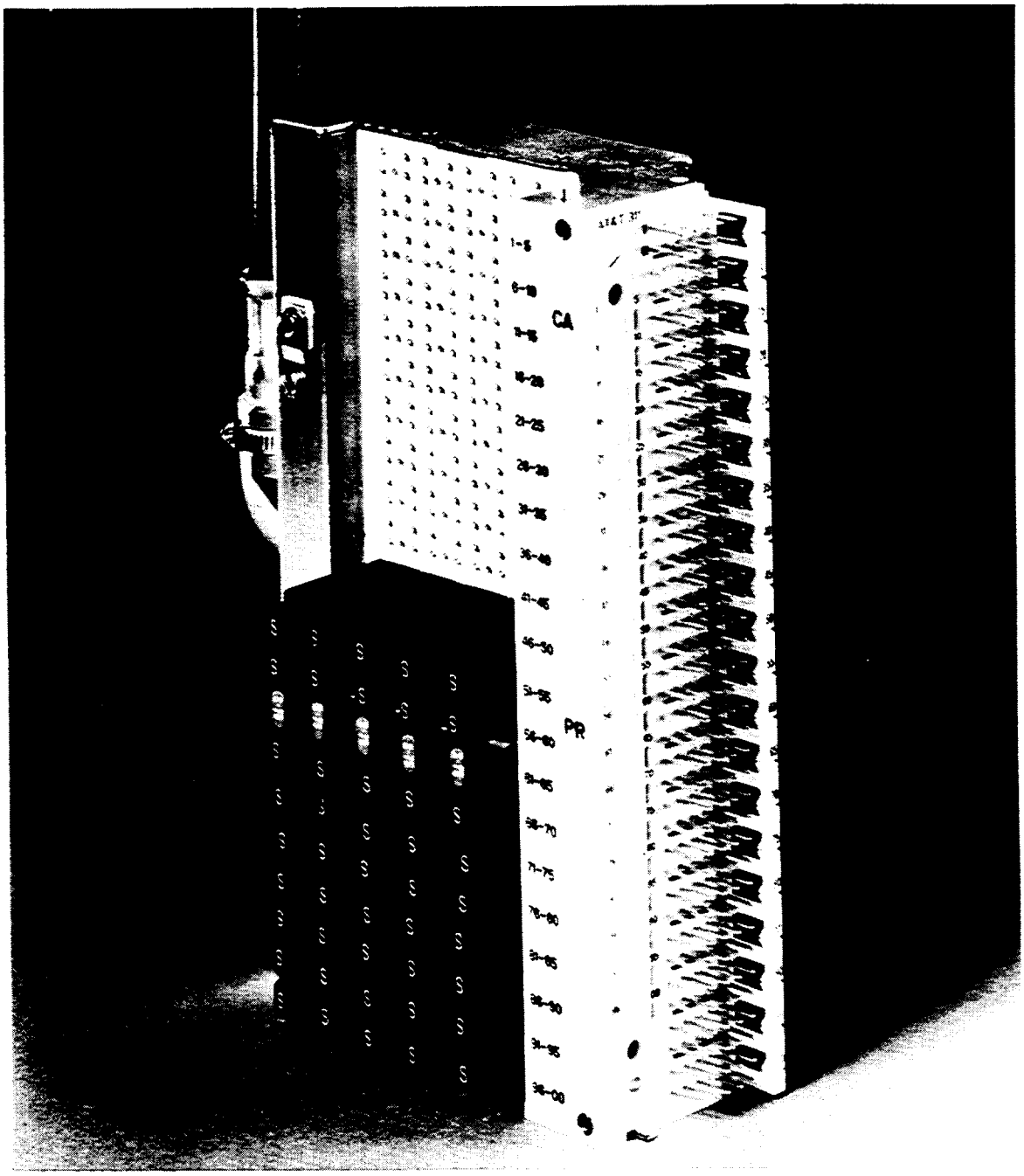

Figure 26. Front View 311L UL Listed Connector

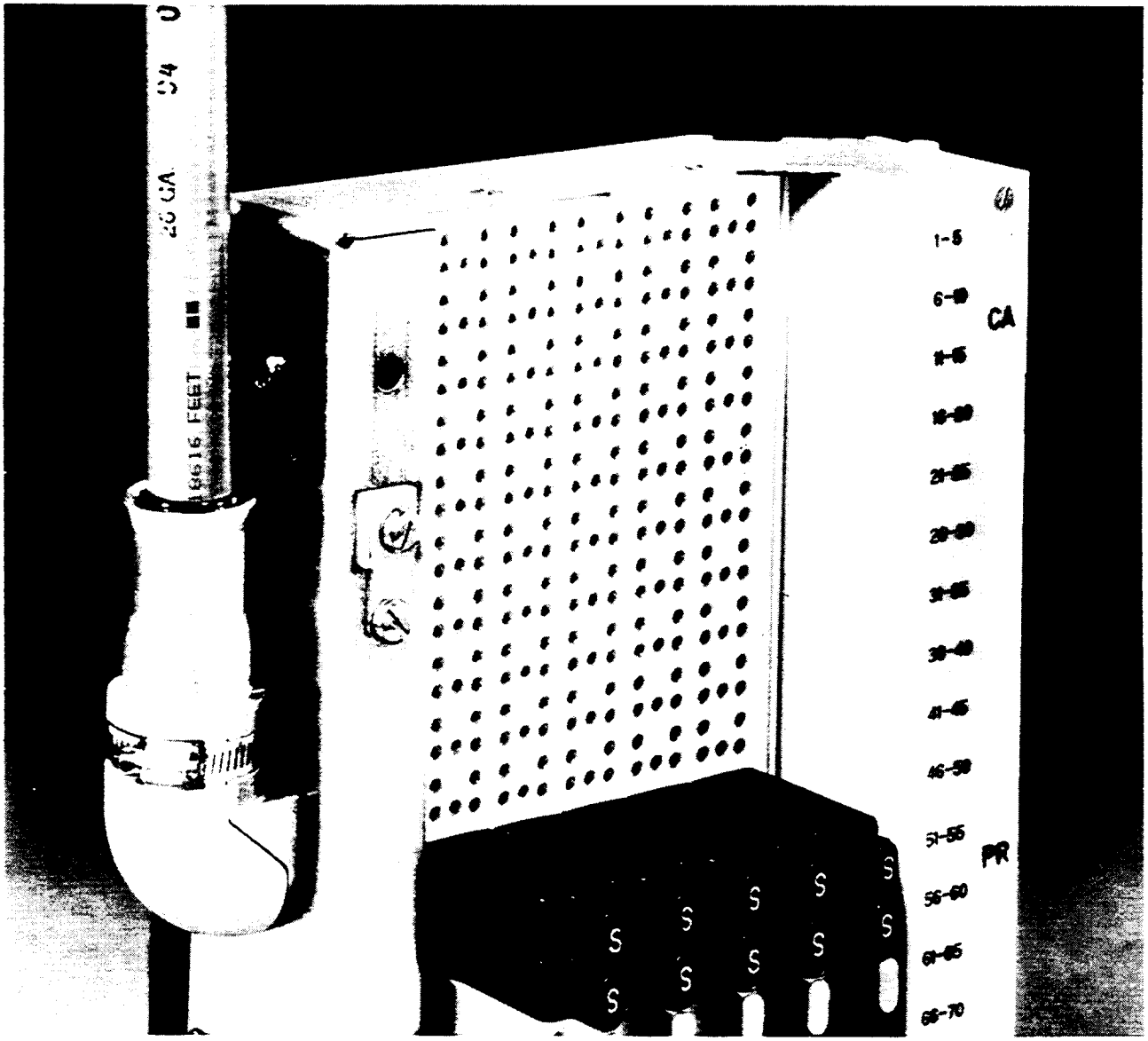

Figure 27. Left Side View 311L UL Listed Connector

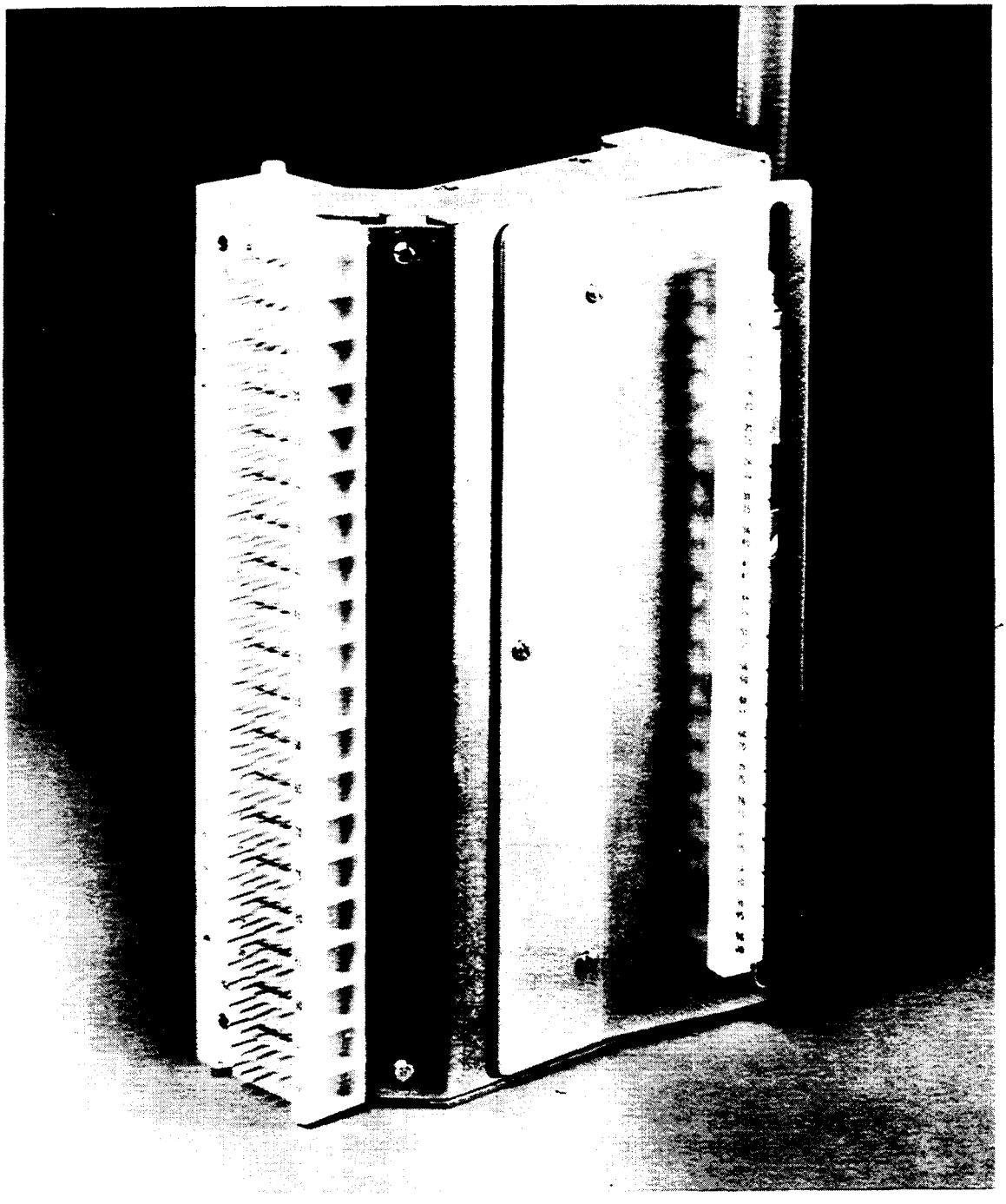

Figure 28. Right Side View 311L UL Listed Connector

7.05 The 311L-type connectors are only available in a single wire-wrap cross-connect terminal arrangement. Table C lists the applications, codes, and specifications of all currently available codes. Other cable stub lengths may be provided upon request.

Table C. 311-Type UL Connector Codes

Application	Cross-Connect Terminal Type	Stub Cable		Description	Comcode
		Length (Feet) (Meters)	Wire Gauge		
Outside Plant Facility Pairs	Single Wire Wrap	30 (9.14 m)	26 (0.4 mm)	311L1-100-30	106060411
		50 (15.24 m)		311L1-100-50	106285729
		80 (24.38 m)		311L1-100-80	106285745
		100 (30.48 m)		311L1-100-100	106285760
		150 (45.72 m)		311L1-100-150	106285778
		200 (80.72 m)		311L1-100-200	106285786

Note: Other 311L-type connector options, such as stubbed and preconnectorized with 710- or 711-type splicing connectors, are also available on a special basis. Please contact your AT&T Sales Representative for ordering information.

Note: The UL testing and subsequent listing of these products were predicated upon their use with conventional distributing frame designs which incorporated access to building ground directly through the frame ironwork and integrated ground bar arrangements.

8. Repair Procedures for 311L-Type Connectors

8.01 The repair procedures for the 311L-type connectors are essentially the same as those for the other 311-series connectors (paragraph 4.01 through 4.11). However, repairs to the internal components may require temporary support and repositioning of the connector to gain access behind the metal side cover.

8.02 The 843826447 cross-connect Figure 8 and test terminals (Figure 8) cannot be easily replaced. In addition, repair of broken or damaged wire conductors leading from the swivel type metal coupling to the 842360976 tip or ring terminal (Figure 17) must comply with special requirements to protect the integrity of the UL Listed design. If it is necessary to perform either of these operations, contact your local AT&T Account Executive for assistance.

9. Associated Equipment and Reference Documents

9.01 The following equipment and AT&T Practices are associated with this document.

Associated Equipment

3- and 4-Type Protector Units (AT&T 201-208-100)

1A Shunt (Comcode 105 570 980) for converting the ground system to an isolated system

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

T Test Connector (AT-8987) (Comcode 402 796 841)
P2DB Test Cord (Comcode 101 433 852)
P2FM Test Cord (Comcode 103 643 987)
W2GL Test Cord (Comcode 101 945 590)
W2GM Test Cord (Comcode 102 490 935)
W4CJ Test Cord (Comcode 101 898 633)
W4CM Test Cord (Comcode 101 981 603).

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

E Warning Marker (Comcode 400 614 202)
E Sign (Comcode 400 359 196)
KS-22596 Guard (Comcode 402 800 627)
KS-6660 Indicator (Comcode 996 698 239)
KS-16847 Indicator (Comcode 997 726 088)
KS-16604 Insulator (Comcode 401 299 474).

Reference Documents

Number	Title
AT&T 069-132-811	*Punched or Wire Terminals (Not Having Notches or Perforations) — Method of Making and Removing Wrapped Connections*
AT&T 069-140-811	*Soldered Connections Using Soldering Coppers — Method of Making and Removing*
AT&T 081-860-105	*Transfer Stenciling Kits — Description and Use*
AT&T 201-206-050	*Cable Terminating Apparatus Selection — Distribution and Protector Frames*

Number	Title
AT&T 201-208-100	*3-, 4-, and 5-Type Protector Units — Description, Use, Maintenance and Test Procedures*
AT&T 201-208-103	*Tools and Aids — Distributing and Protector Frames*
AT&T 201-208-106	*Test Equipment, Cords, Plugs, Warning Markers, Guards, Insulators, and Indicators — Description and Use — Distributing and Protector Frames*
AT&T 201-220-101	*Conventional Distributing Frames — Description*
AT&T 201-220-301	*Terminal Strips — Method of Making Connections*
AT&T 201-220-501	*Conventional Distributing Frames — Inspections*
AT&T 201-220-801	*Terminal Strips — Repair Procedures*
AT&T 636-200-011	*Marking Main Frames — Pair and Cable Numbers.*

9.02 The AT&T Practices listed in paragraph 9.01 are stocked in Indianapolis, Indiana, at the AT&T Customer Information Center. To order copies:

- Call 1-800-432-6600

  or

  Complete Form IND 1-80.80 and mail to:

  AT&T Customer Information Center
  Attention: Order Entry Department
  2855 N. Franklin Road
  P.O. Box 19901
  Indianapolis, IN 46219-1999