307-TYPE CONNECTORS

DESCRIPTION

CONTENTS

1. GENERAL

1.01 This practice covers the description of the 307-type connector, and the connecting blocks, stub cables, and protector units used with the 307-type connector. ▶The 307-type connector is used on the COSMIC™ II and IIA main distributing frame systems, COSMIC II mini combined distributing frames and SLC® carrier remote terminals.◀

1.02 This practice is reissued to add reference to the 307C2-100, 307C3-100, 307C4-100, and 307C5-100 connectors and SLC Series 5 carrier remote terminal. Revision arrows are used to indicate these changes.

1.03 The COSMIC II and IIA distributing frames are designed to accommodate the 307-type connector. They feature modular framework with provisions for mounting protection, thus eliminating the need for a separate protector frame.

1.04 The protector panel and the connecting block are factory interconnected with a 100-pair wiring harness except for the 307C-type connectors which have 710-type connectors in place of connecting blocks.

1.05 Replacement parts and repair procedures for the 307-type connector are included in Practice 201-208-810.

2. 307-TYPE CONNECTOR

A. 307A1-100 and 307B1-100 Connectors

2.01 Refer to Table A for the 307-type connector codes, rating, and associated connecting blocks. The 307A1-100 (Fig. 1 and 2) has a protector panel interconnected to one 100-pair, 78C-type connecting block. The connecting block is stenciled 01-100 and represents any 100-pair complement in an outside plant cable. The 307A1-100 is mounted on shelves 2 through 10 of the COSMIC II or IIA distributing frames. The 307B1-100 connector (Fig. 3 and 4) has a protector panel interconnected to two 50-pair, 78C-type connecting blocks. One block is stenciled 01-50 and the other is stenciled 51-100. The combination of these two 50-pair connecting blocks represents any 100-pair complement in an outside plant cable. The 307B1-100 is mounted on shelves 1 and 11 of the COSMIC II and IIA distributing frames.

→TABLE A←

307-TYPE CONNECTOR SPECIFICATIONS (STANDARD)

CODE	CAPACITY PAIRS	RATING		CODE OF ATTACHED CONNECTING BLOCK(S) (NOTE 1)
		STD	A&M	
307A1-100	100		X	78C1B-100
307B1-100			X	78C1B-50 78C2B-50
307C1-100		X		No connecting block(s)
307C2-100*		X		
307C3-100		X		
307C4-100		X		
307C5-100		X		
307D1-100		X		112C1B-100
307D2-100		X		112C1B-100
307E1-100		X		112C1B-50 112C2B-50

Note:

1. Do not mix 78C-type connecting blocks with 112-type blocks in the same frame.

* SLC 96 and SLC Series 5 carrier remote terminal application.

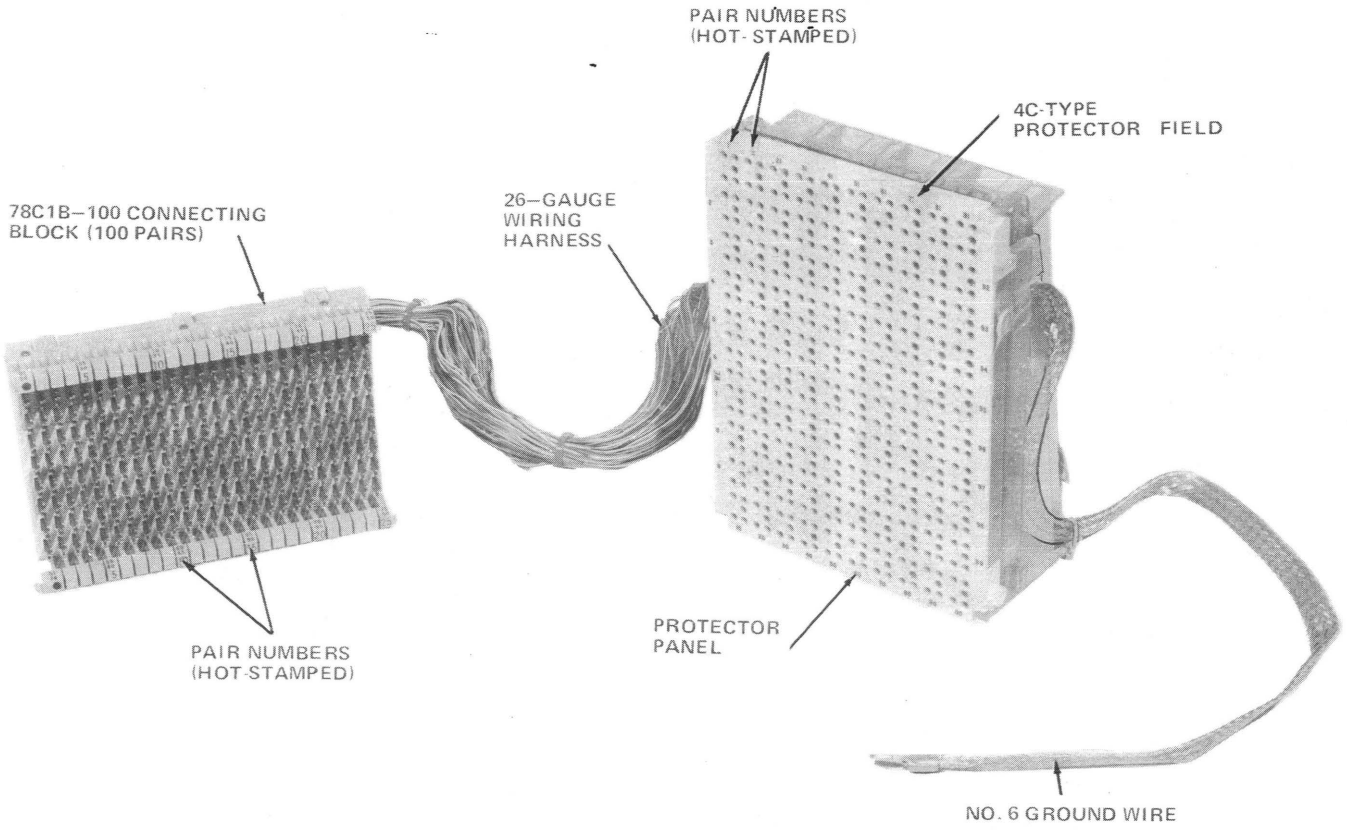


Fig. 1—Front View of 307A1-100 Connector

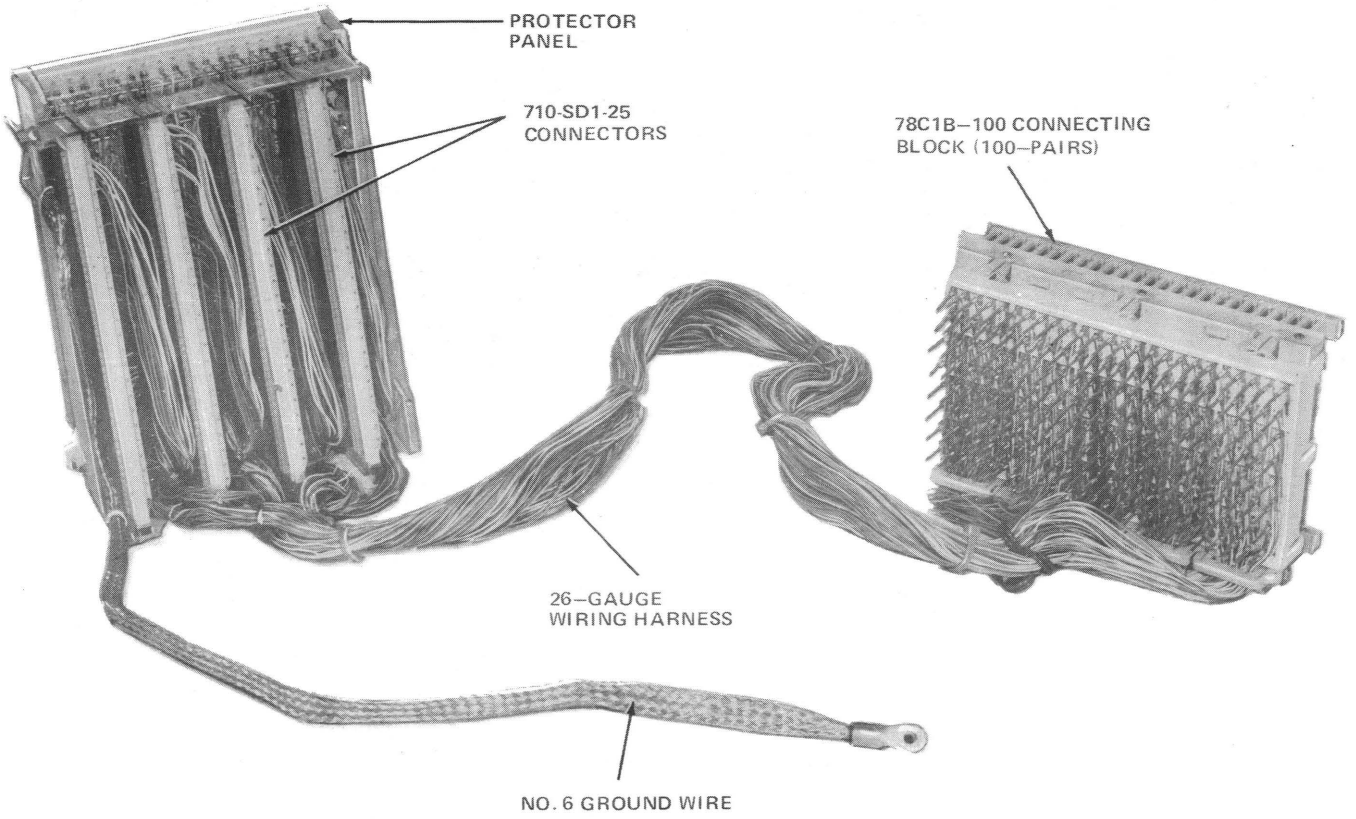


Fig. 2—Back View of 307A1-100 Connector

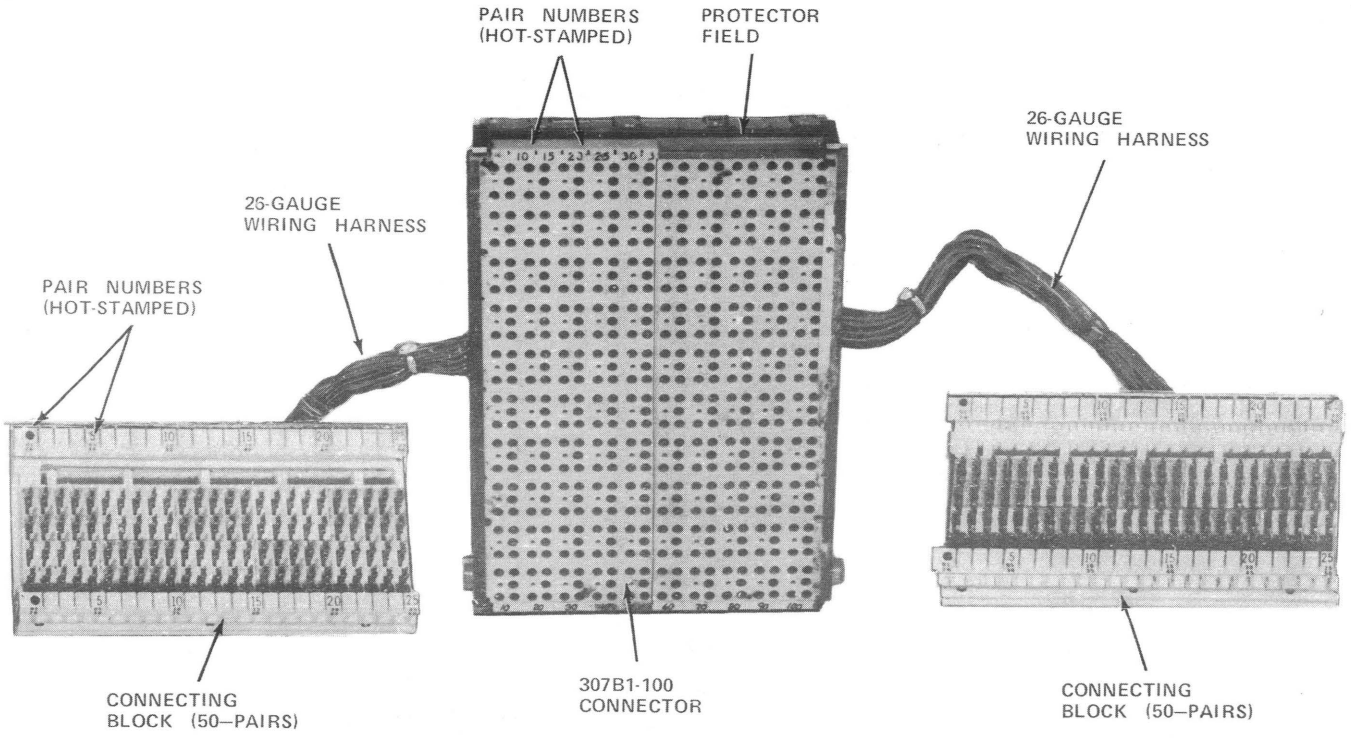


Fig. 3—Front View of 307B1-100 Connector

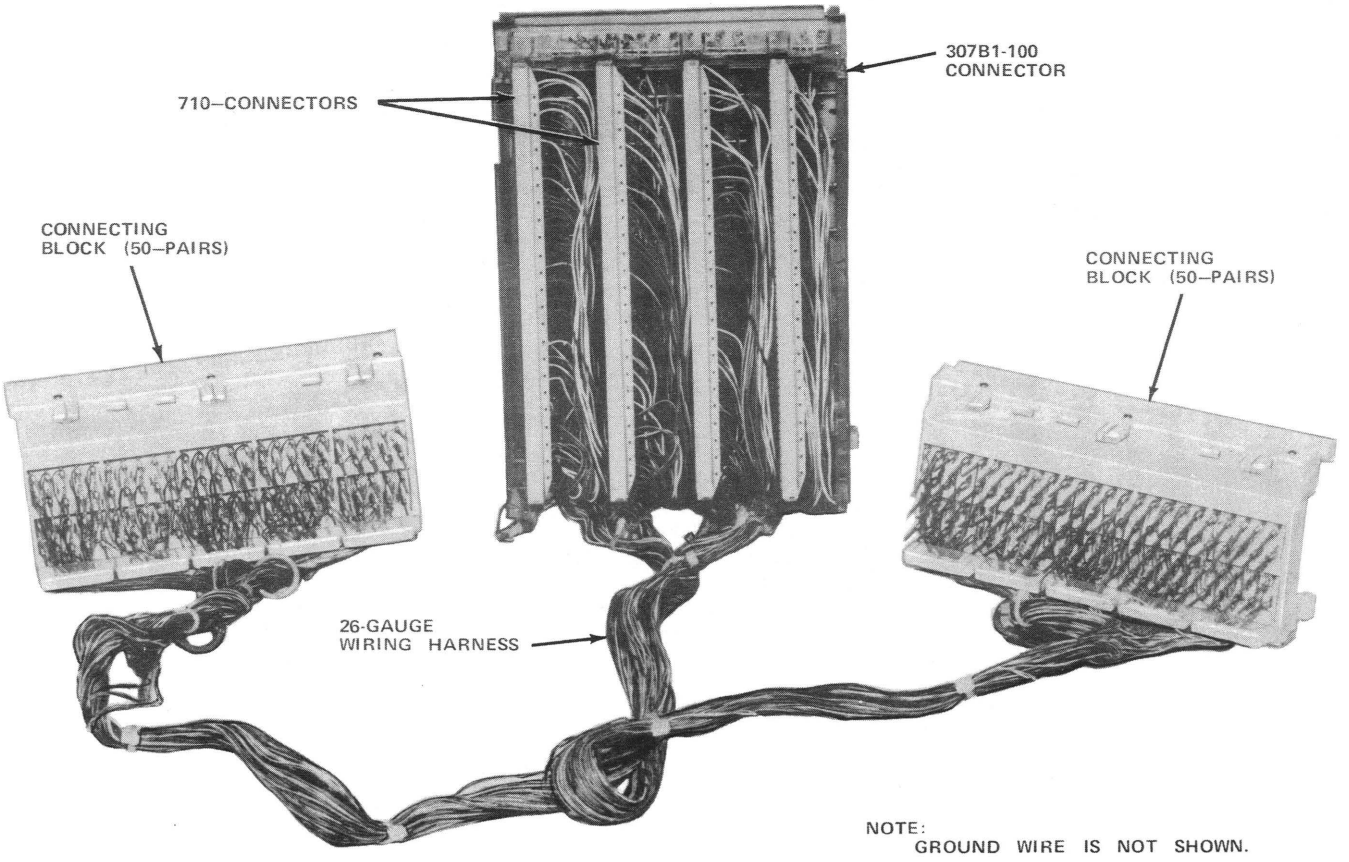


Fig. 4—Back View of 307B1-100 Connector

2.02 The 307A1-100 and 307B1-100 connector blocks have additional backplane wiring which interconnects the protector panel to four 710 fire-retardant connectors (Fig. 5). The four 710-connectors are rigidly held in a plastic bracket which is attached to the rear of the protector panel. These connectors provide for rapid connection to connectorized 11C or 11D cable stubs equipped with mating 710-bridge modules (Fig. 6).

2.03 Both the 307A1-100 and the 307B1-100 are rated A&M only and have been replaced by the 307D1-100 and the 307E1-100, respectively. ▶The 307D1-100 and 307E1-100 should be used ***only*** on existing COSMIC II distributing frames that are equipped with 78C-type connecting blocks.◀

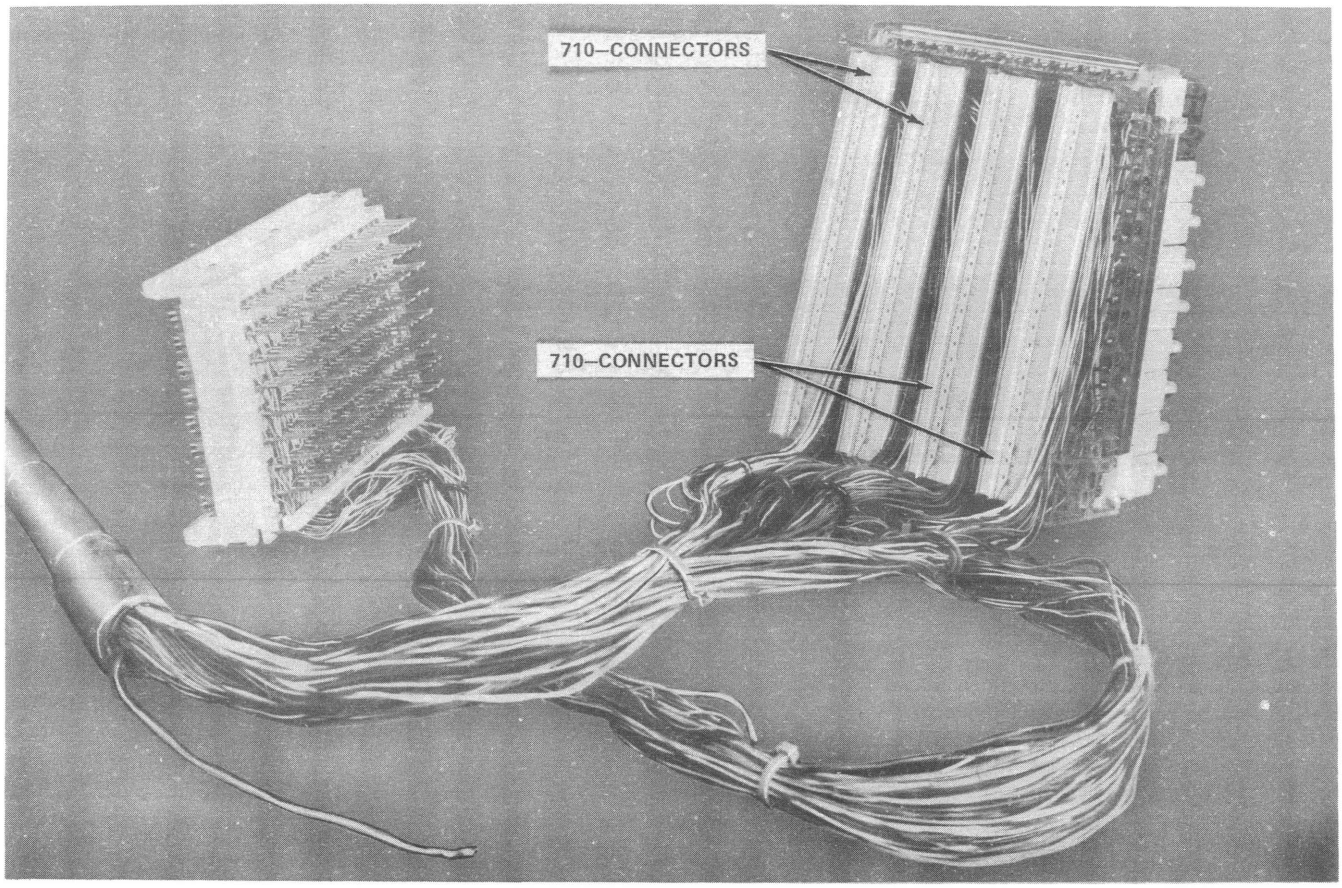


Fig. 5—710-SD1-25 Connector

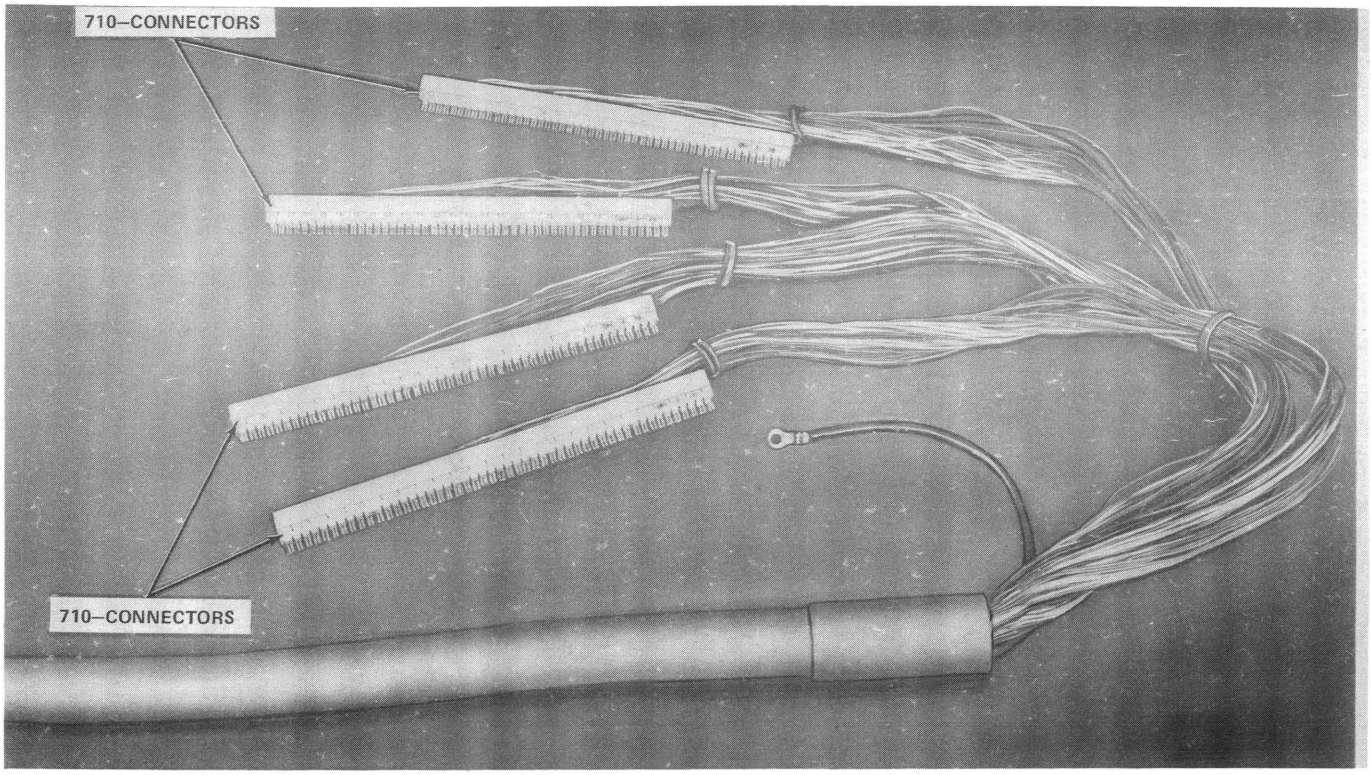
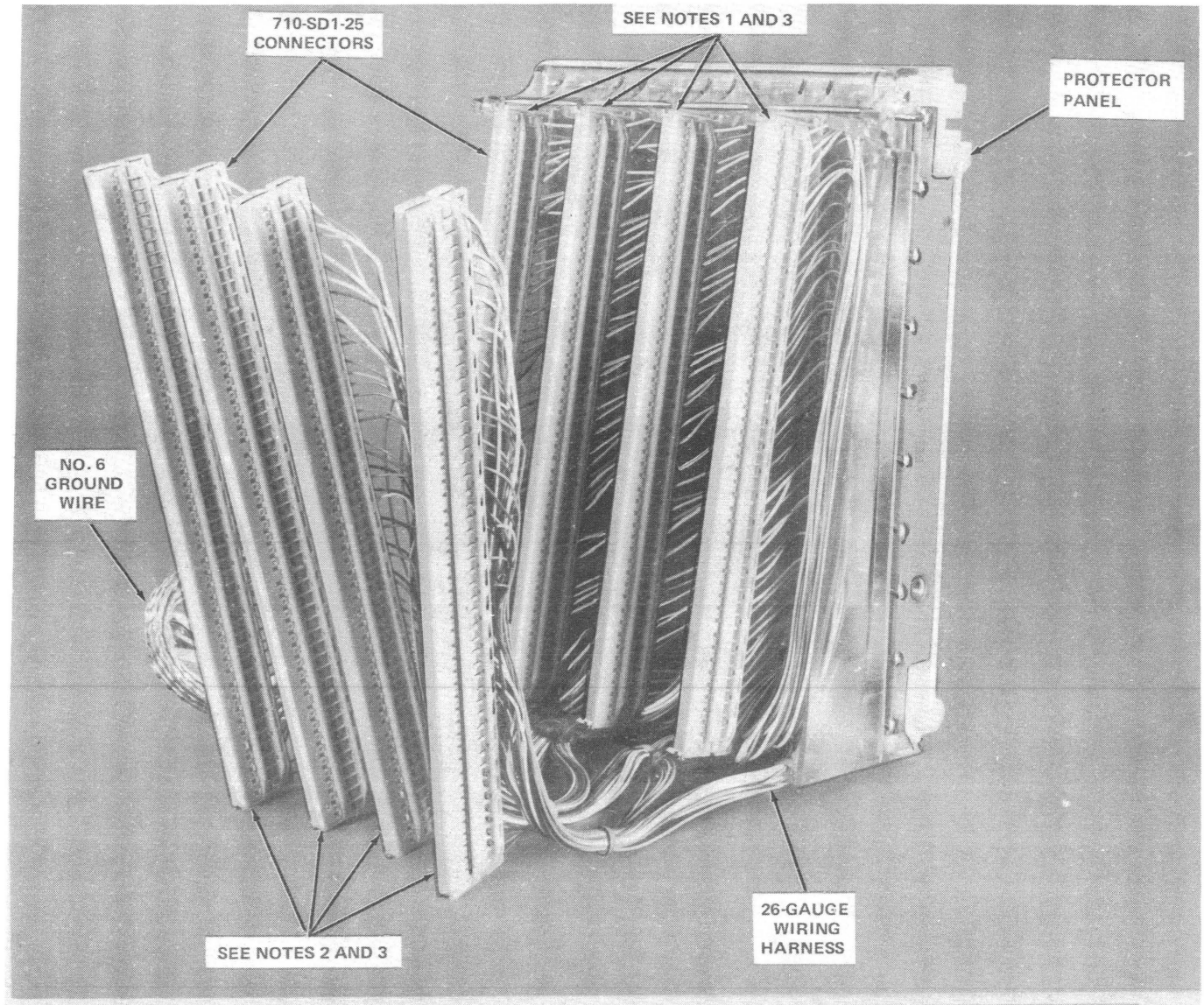


Fig. 6—11CA and 11DA Stub Cables

B. 307C1-100 Connector

2.04 The 307C1-100 connector (Fig. 7) is used for protection and test access for T-carrier systems. It consists of eight 710-SD1-25 splicing module connectors. Four of these connectors are provided to allow connection directly to the T-carrier office repeater bay. The other four connectors provide quick connection to two 50-pair or one 100-pair tip cable. The connector is not provided with a connecting block.

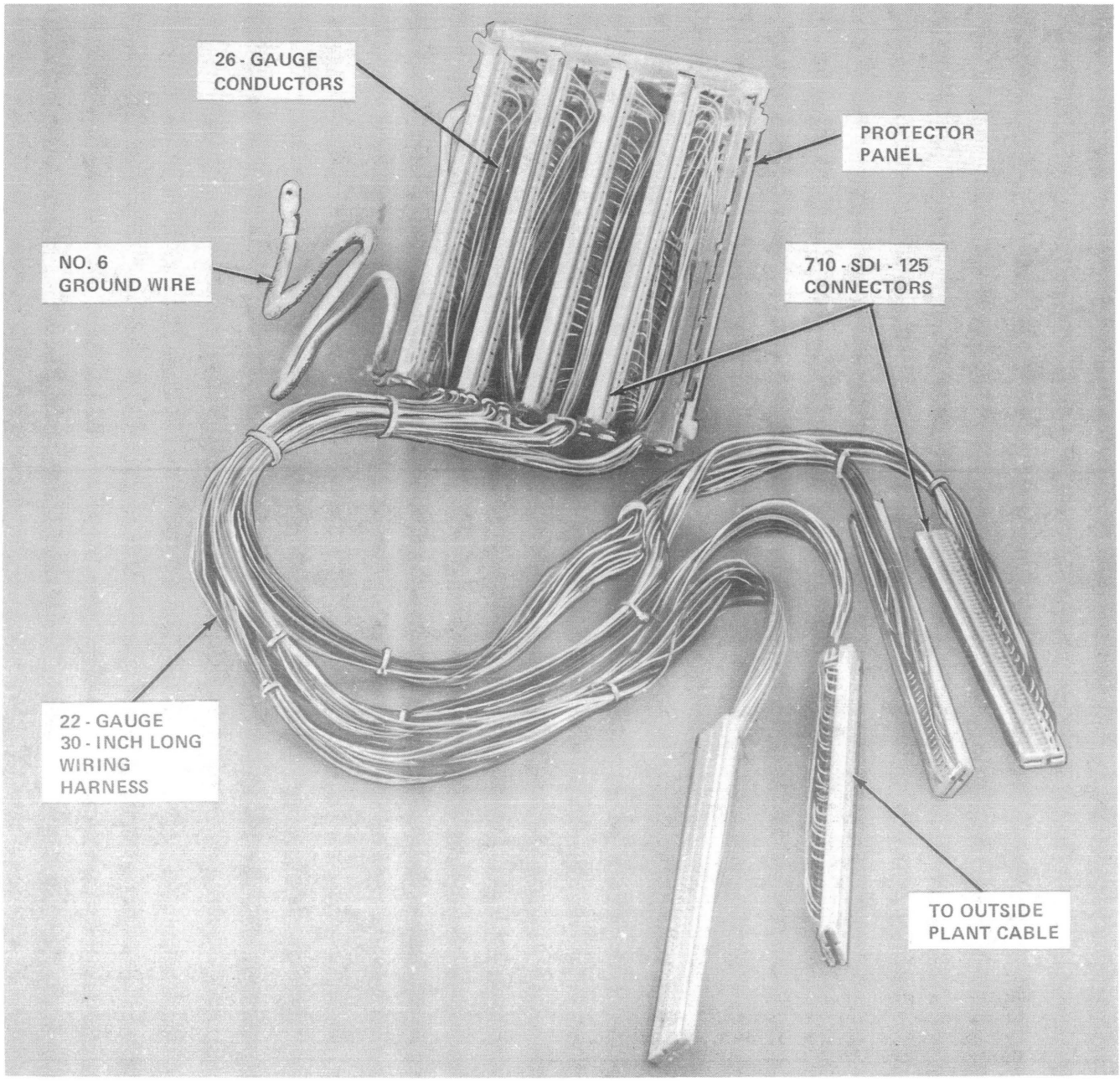


NOTES:
1. CONNECTS TO ONE 11CA (22 GAUGE) OR ONE 11CA (24 GAUGE) 100-PAIR CONNECTORIZED STUB CABLE FROM THE CABLE ENTRANCE FACILITY OR TWO 11CB (22 GAUGE ONLY) 50-PAIR CONNECTORIZED STUB CABLES FROM THE CABLE ENTRANCE FACILITY.
2. CONNECTS TO FOUR 11EA (25-PAIR 609B CABLE [ABAM]) CONNECTORIZED TIE CABLES TO THE CENTRAL OFFICE REPEATER BAY OR TWO (50-PAIR 610B CABLE [ABAM]) CONNECTORIZED TIE CABLES TO THE CENTRAL OFFICE REPEATER BAY.
3. SEE ED-6C114-10 COSMIC II METHOD OF CABLING.

Fig. 7—Back View of 307C1-100 Connector

C. ▶307C2-100 Connector

2.05 The 307C2-100 connector (Fig. 8) is for use in the AT-9049 type protector and cable enclosures used in SLC 96 carrier remote terminal applications. It is similar to the 307C1-100 connector except for the gauge size of the conductors. As with the 307C1-100 connector, the 307C2-100 connector is arranged with two sets of splice 710-SD1-25 connectors (8 total, designated J1 through J8). One set of four connectors (J1 through J4) is attached to a 30-inch long, 22-gauge wire harness and serves as an interface to the outside plant cable. The other set of four connectors (J5 through J8) is terminated with 26-gauge conductors and is used for connecting to intermediate derived and digital cables.



▶Fig. 8—307C2-100 Connector◀

D. 307C3-100 Connector

2.06 The 307C3-100 connector (Fig. 9) has a protector panel with connectorized harnesses to be used in 80-type cabinets for the T1 transmit and receive pairs, and the miscellaneous pairs for the SLC Series 5 remote terminal. Pairs 1 through 20 are for the transmit pairs, pairs 51 through 58 are for the miscellaneous pairs, and pairs 81 through 100 are for the receive pairs. Shielded 5-pair cable is used for pairs 1 through 20 and pairs 81 through 100, and 8-pair cable is used for pairs 51 through 58. Each of the 5-pair cables in the harness for the equipment side is connectorized into individual 710-BB1-25 connectors, as is the 8-pair cable. On the outside plant side of the harness, two 5-pair cables are connectorized onto each 710-SC1-25 connector, such that pairs 1 through 10, pairs 11 through 20, pairs 81 through 90, and pairs 91 through 100 are on separate connectors. Pairs 51 through 58 of the outside plant side of the harness are left raw ended. The lengths of the cables making up the harness are such that the cables can be routed through the cabinet to the appropriate position.

E. 307C4-100 Connector

2.07 The 307C4-100 connector has a protector panel with connectorized harnesses to be used in 80-type cabinets for the derived cable pairs for the SLC Series 5 remote terminal. The harness for the equipment side is made from four 25-pair cables 5 feet 10 inches long, which are connectorized into 710-BB1-25 connectors, and is routed through the cabinet to the channel bank splice area for either position 1 or position 3. The harness for the outside plant side is made of four 25-pair cables 8 feet long, which are connectorized into 710-SC1-25 connectors, and is routed through the cabinet to the outside plant cable splice area. The 307C4-100 connector is identical to the 307C5-100 connector except for harness lengths.

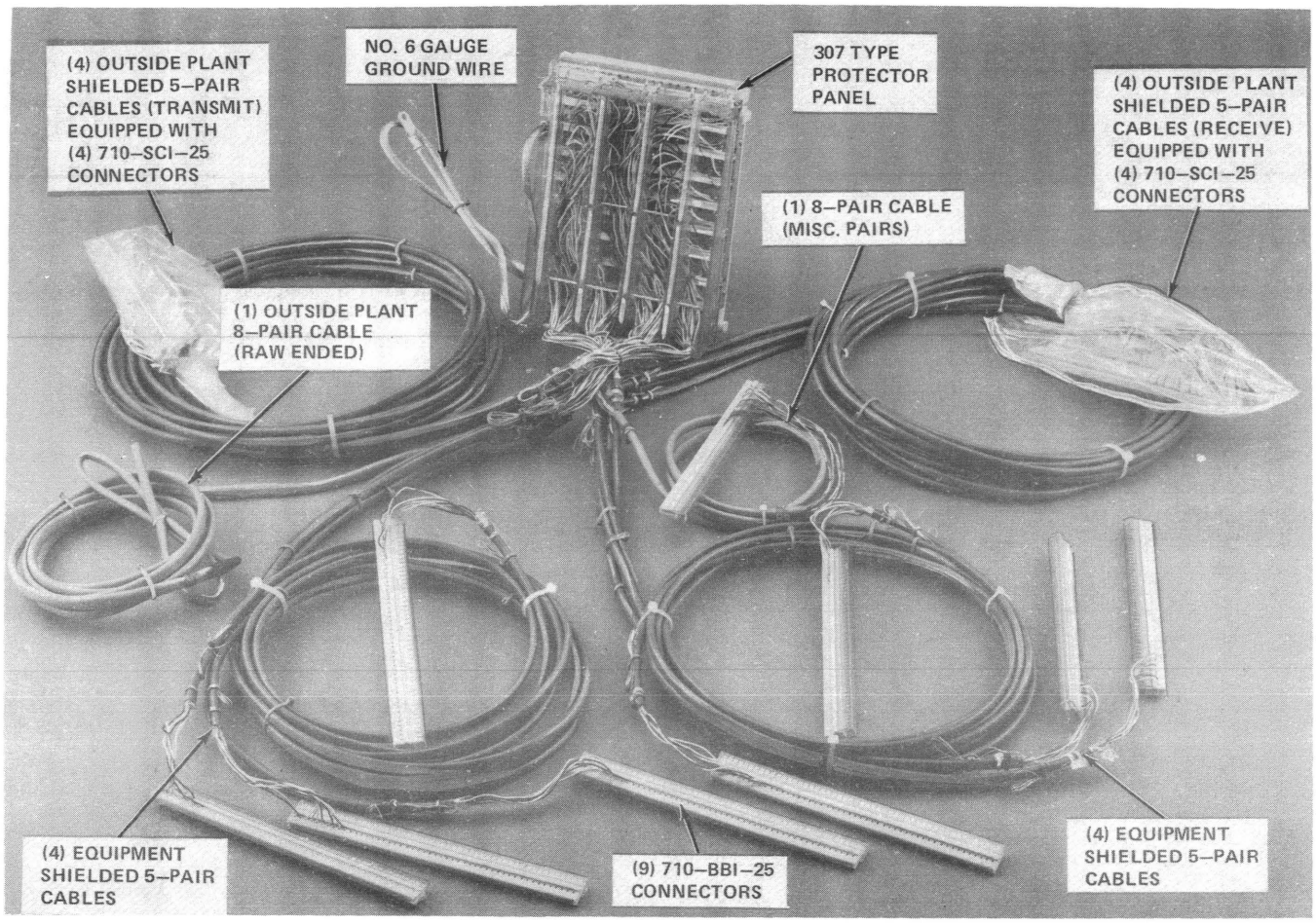


Fig. 9—307C3-100 Connector

F. 307C5-100 Connector

2.08 The 307C5-100 connector (Fig. 10) has a protector panel with connectorized harnesses to be used in 80-type cabinets for the derived cable pairs for the SLC Series 5 remote terminal. The harness for the equipment side is made from four 25-pair cables 4 feet long, which are connectorized into 710-BB1-25 connectors, and is routed through the cabinet to the channel bank splice area for either position 2 or position 4. The harness for the outside plant side is made from four 25-pair cables 10 feet long, which are connectorized into 710-SC1-25 connectors, and is routed through the cabinet to the outside plant cable splice area.

G. 307D2-100 Connector

2.09 The 307D2-100 connector, developed especially for the COSMIC II mini combined distributing frame, consists of two components; the protector panel and the connecting block. It is factory-wired via a 54-inch long cable to a 100-pair 112-type connecting block which is mounted on one of the shelves numbered 3 through 7. The protector panel is mounted on one of the shelves of a facility bay numbered 1, 2, or 8 through 10. For example, a protector panel mounted on the right side of shelf 8 will have its associated connecting block mounted on the right side of shelf 5.

Note: The COSMIC II mini combined distributing frame is single-sided (Fig. 11), unlike the COSMIC II or IIA main distributing frame which has the protector panels mounted on the rear of the outside plant bay.

H. 307D1-100 and 307E1-100 Connectors

2.10 The 307D1-100 and the 307E1-100 connector assemblies are equipped with 112-type connecting blocks instead of 78-type connecting blocks. Except for the difference in connecting blocks, these connectors serve the same purpose as the 307A1-100 and 307B1-100 connectors described in paragraphs 2.01 and 2.02.

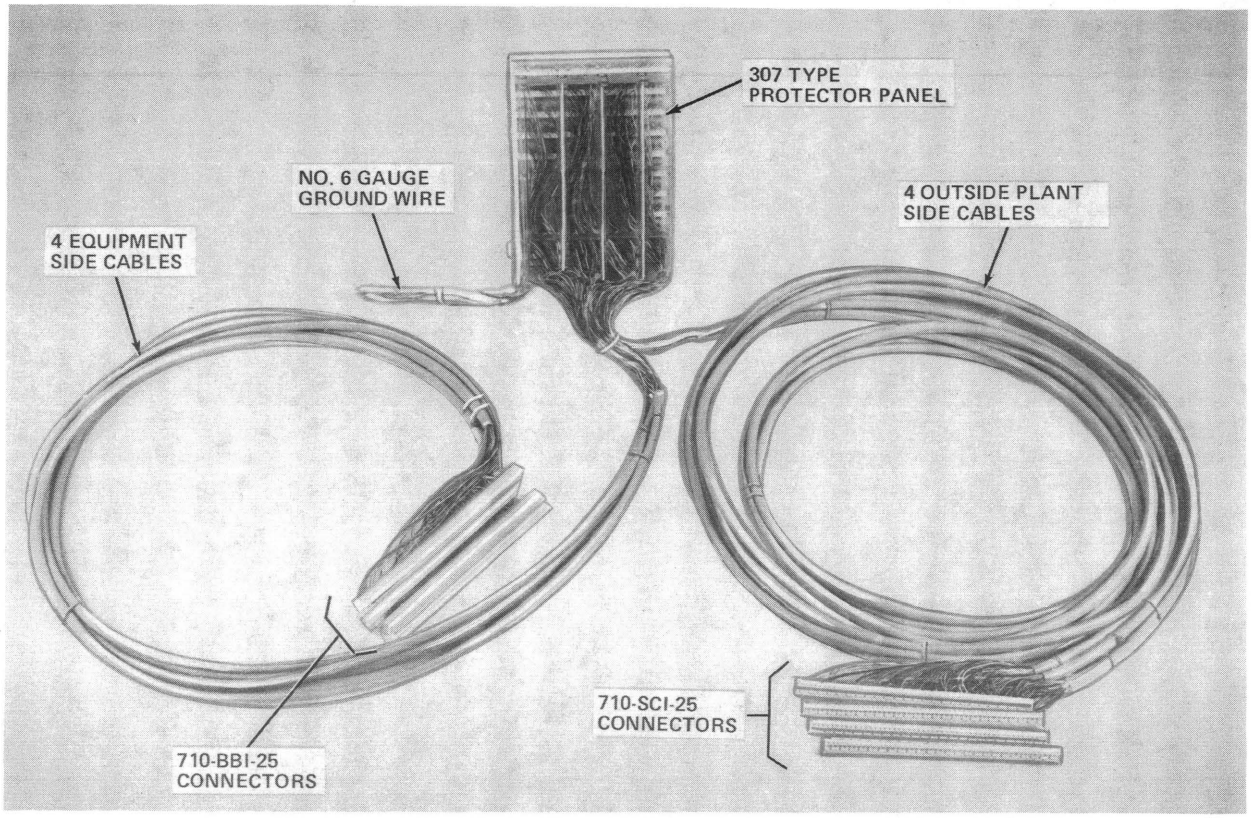


Fig. 10—307C5-100 Connector

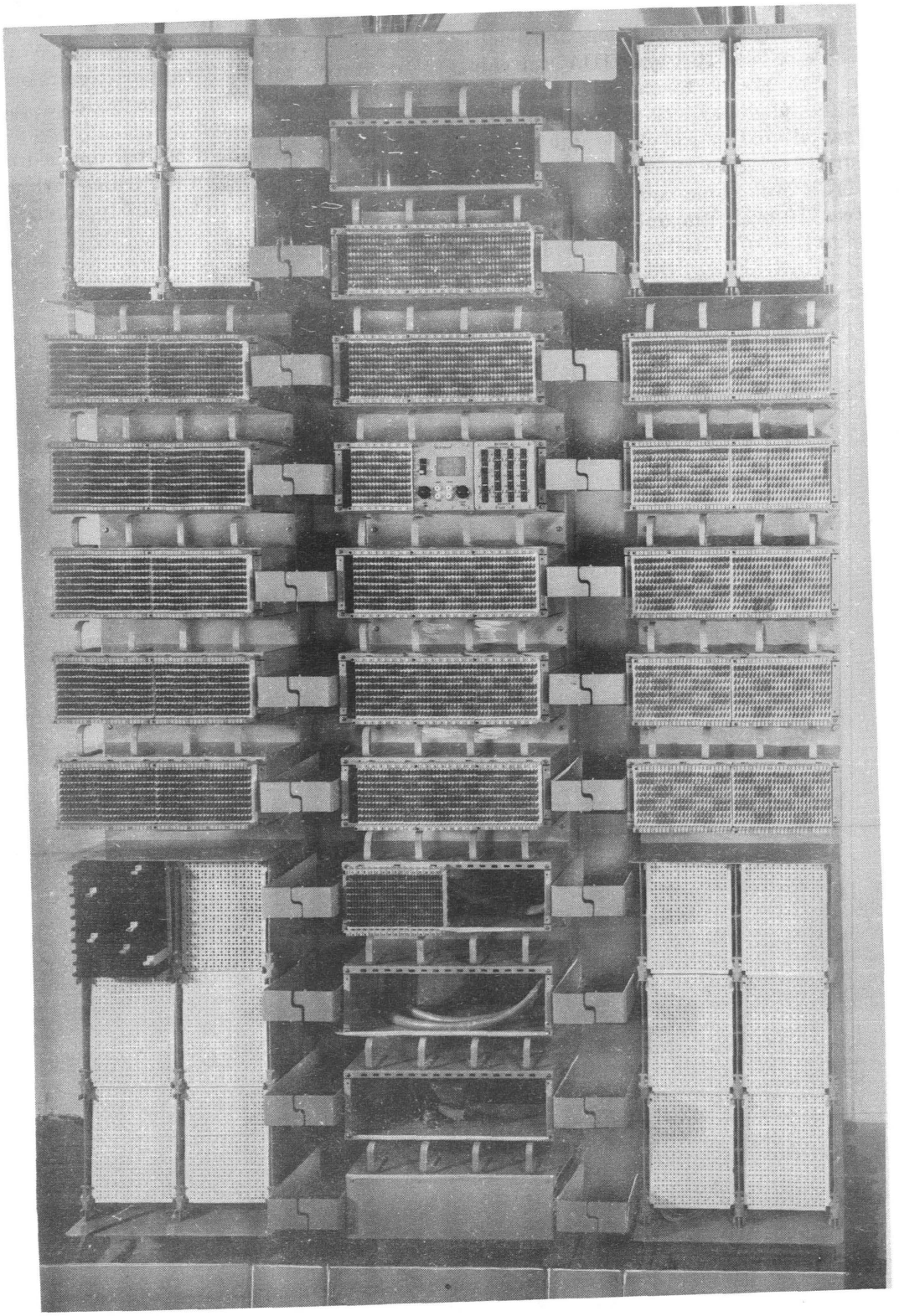


Fig. 11—COSMIC II Mini Combined Distributing Frame

3. STUB CABLE

3.01 Stub cables are used with 307-type connectors.

The codes, capacity, application, and lengths are given in Table B. The 11CA and 11DA stub cables are made up with 22- or 24-gauge (respectively) tinned copper and insulated with color-coded polyvinyl chloride insulation. One end of the stub is terminated with four 710 bridge modules (Fig. 6) in 25-pair groups. The 11CB stub cable contains 50 pairs, 22 gauge, with two 710 bridge modules (25 pairs each) for connection to the 307C1-100 connector. It is used to terminate split (transmit or receive) 50-pair counts with T-carrier outside plant cables. The 11EA stub cable (25 pairs) and the 11EB stub cable (50 pairs) constructed from 22-gauge 600 series cable are used to terminate T-carrier circuits on the 307CI-100 connectors (via 710 bridge modules). Each 710 bridge module is protected by an individual plastic cover. These covers should not be removed until the cable has been installed in the framework and connection of the stub cable to the 307-type connector has been started.

→TABLE B←

11-TYPE CONNECTORIZED STUB CABLES

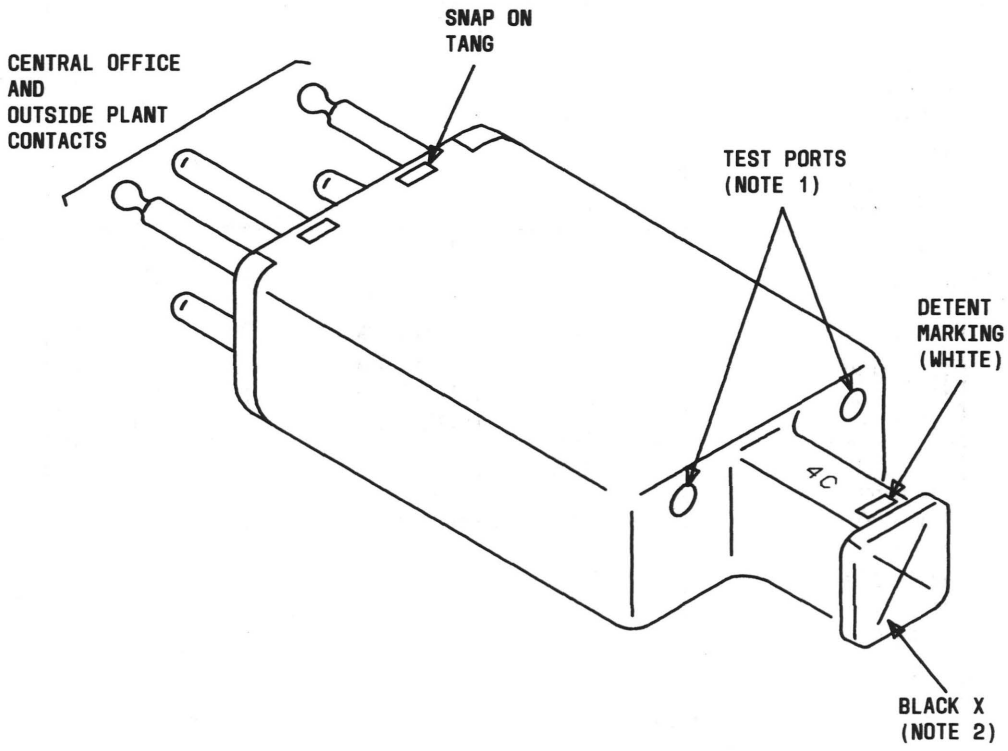
22-GAUGE		24-GAUGE	
STUB CODE (NOTES 1, 2, 3, & 4)	LENGTH (FEET)	STUB CODE (NOTES 2 & 5)	LENGTH (FEET)
11CA-40	40	11CB-40	40
11CA-60	60	11CB-60	60
11CA-80	80	11CB-80	80
11CA-100	100	11CB-100	100
11CA-120	120	11CB-120	120
11CA-150	150	11CB-150	150
11CA-200	200	11CB-200	200
11CB-40	40		
11CB-60	60		
11CB-80	80		
11CB-100	100		
11CB-120	120		
11CB-150	150		
11CB-200	200		
11EA-40	40	11DA-40	40
11EA-60	60	11DA-60	60
11EA-80	80	11DA-80	80
11EA-100	100	11DA-100	100
11EA-120	120	11DA-120	120
11EA-150	150	11DA-150	150
11EA-200	200	11DA-200	200
11EB-40	40		
11EB-60	60		
11EB-80	80		
11EB-100	100		
11EB-120	120		
11EB-150	150		
11EB-200	200		

Notes:

1. **11CA-Type:** The 100-pair 22-gauge stub cable is used for tip cable, is equipped with four 25-pair 710BD1-25 bridge modules, and is for use with 307A1, B1, D1, and E1 connectors.
2. **11CB-Type:** The 50-pair 22-gauge stub cable is used for tip cable and is equipped with two 710BD1-25 bridge modules. This stub-cable is intended for split 50-pair transmit and receive counts associated with T-Carrier facility cables and 307C1-100 connectors.
3. **11EA-Type:** The 25-pair 22-gauge stub cable is made from 609B shielded cable and is equipped with 710BD1-25 bridge module. The stub cable interconnects the 307C1-100 connector and the T-Carrier office repeater bay.
4. **11EB-Type:** The 50-pair 22-gauge tie cable is made from 610B shielded cable and is equipped with two 710BD1-25 bridge modules. This tie cable interconnects the 307C1-100 connector and the T-Carier office repeater bay.
5. **11DA-Type:** The 100-pair 24-gauge stub cable is used for tip cable, is equipped with four 25-pair 710BD1-25 bridge modules, and is for use with 307A1, B1, D1, and E1 connectors.

4. PROTECTOR UNIT

4.01 The 4C protector units (Fig. 12) are used on most of the 307 connectors for central office applications. They provide either voltage and current protection or no protection. Several protector codes are available for specific service applications. Each code is identified by color. The protector units and their application are identified in Table C.



Notes:
1. The 4C3C, 4C3E, and 4C3F protector units, used for special circuits, do not have test ports.
2. The 4C9C, 4C9E and 4C9F protector units, used for line (T & R) reversing, have a black X marking on the handle. In addition, the 4C-F series have the symbol Φ stamped on the handle. The 4C-E series have the symbol "O" stamped on the handle.

Fig. 12—4C-Type Protector Unit

→TABLE C←

4C-TYPE PROTECTOR UNITS

CODE	HOUSING COLOR	CIRCUIT APPLICATION	32A & 33B CARBON BLOCKS	GAS TUBES (NOTE 1)	HEAT COILS (2 EACH)
4C1C	Black	Standard	Yes	No	82B
4C2C	Green	Denied Line	Yes	No	82A
4C3C	Red	Special	Yes	No	82B
4C4C	Yellow	PBX Battery	Yes	No	82C
4C9C	White	Reverse T&R*	Yes	No	82B
4C11C	Orange	Minibridge Lifter	Yes	No	82B
4C12C	Gray	Continuity Only	No	No	No
4C1E	Black	Standard	No	201A	82D
4C2E	Green	Denied Line	No	201A	82A
4C3E	Red	Special	No	201A	82D
4C4E	Yellow	PBX Battery	No	201A	82E
4C9E	White	Reverse T&R*	No	201A	82D
4C11E	Orange	Minibridge Lifter	No	201A	82D
4C1F	Black	Standard Circuit	No	205A	82D
4C2F	Green	Service Denied Circuit	No	205A	82A
4C3F	Red	Special Circuit	No	205A	82D
4C4F	Yellow	PBX Battery	No	205A	82E
4C9F	White	Reverse Tip & Ring	No	205A	82D
4C11F†	Orange	Minibridge Lifter	No	205A	82D

Notes:

1. Protector units equipped with 201A gas tubes have the symbol " 0" marked on the face of the handle.

* These protector units have the symbol " X" marked on the face of the handle.

† The 4C-F series of protector units are equipped with special gas tubes for 5ESS‡ applications. The symbol " Φ" is marked on the face of the handle.

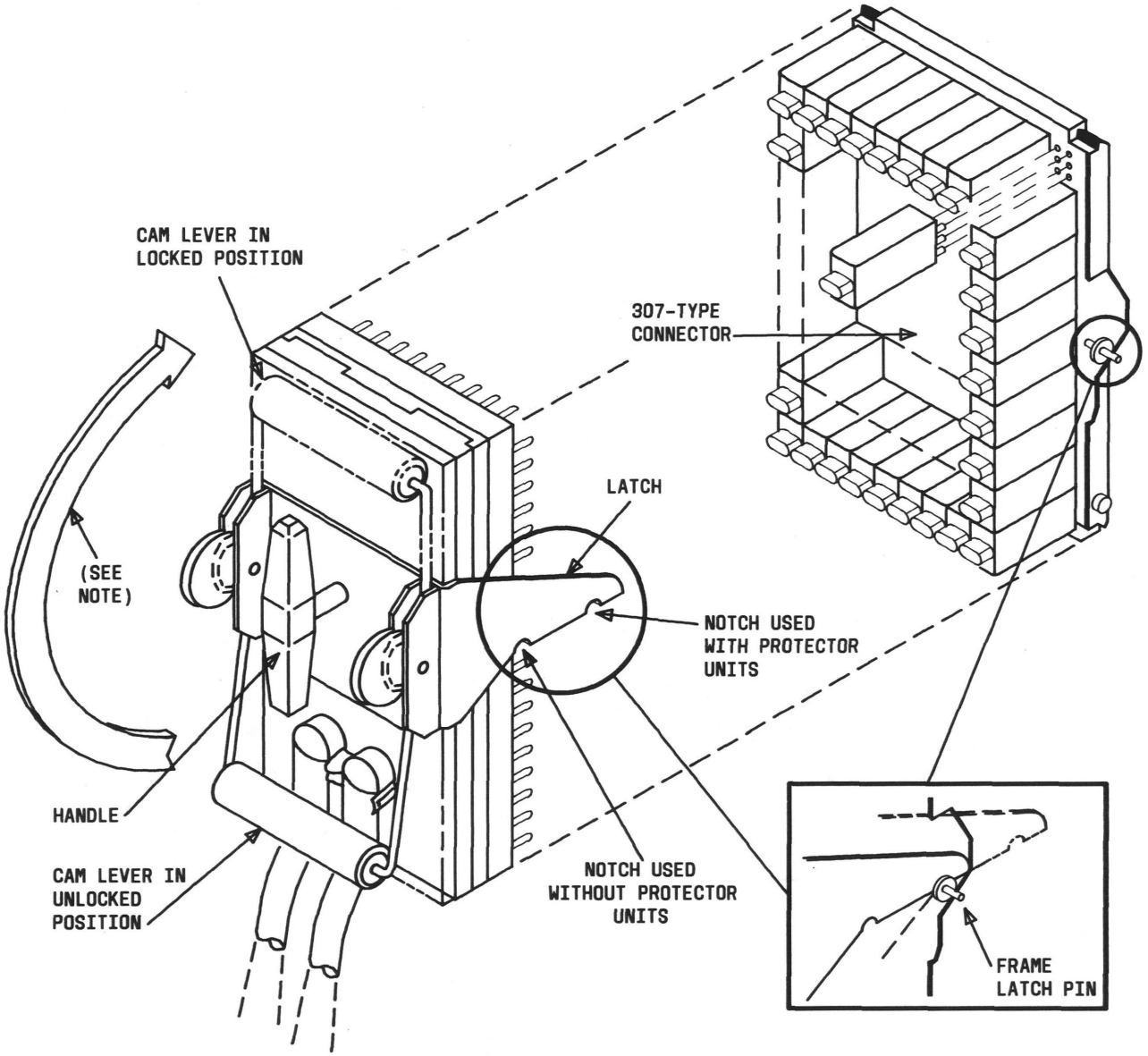
‡ Trademark of AT&T Technologies, Inc.

4.02 The 4C protector unit uses the same basic internal components as the 4B-type protector units (carbons or gas tubes and heat coils). All the housings for 4C protector units are the same physical length and height to enable mounting a 100-pair test shoe over the protector field. For short term test or service denial, the 4C protector unit may be partially withdrawn to the detent position in the longer (outside plant side) contact pins. This will disconnect the central office equipment, but will continue to provide voltage protection to the outside plant cable. For longer test or service denial, the 4C2C, or 4C2E protector units (green) also provide voltage protection to the outside plant conductors but do not provide continuity to the switching equipment.

4.03 ▶Only 4C-type protector units, which provide electrical voltage, current protection, and test access, are used on the 307-type connectors for COSMIC II and IIA main distributing frames and COSMIC (Mini) CDF. The 3B-type protector units, which provide voltage protection only, can be used on the 307C2-100 through 307C5-100 connectors intended for SLC 96 and SLC Series 5 carrier remote terminal applications. However, test access with the 299A test adapter or the P2FL test cord is not possible. The 3C-type protector units provide test access and are compatible with the P2FL test cord but are not compatible with the 299A test adapter.◀

5. TEST ADAPTER AND TEST CORDS

5.01 The 299A test adapter (Fig. 13) is used principally for facility cable pair identification in conjunction with a variety of test equipment. It is a multiple pair testing device (100 pairs) and can be used as the access device to check for grounds, opens, shorts, reversals, and backtaps. A cam-actuated bracket locks the adapter onto the connector. Notches on the bracket provide two positions for testing connectors, that is, with or without protector units installed. A handle on the bracket is used to hold and align the test adapter for installation. The internal components consist of 200 spring-loaded, gold-plated contacts that are connected by a cable to four 25-pair KS-19162, L4 connectors. A carrying case and a 100-pair "tone pick" panel are included with the test adapter.



NOTE:
TO CONNECT TEST ADAPTER GRASP HANDLE AND ALIGN WITH THE 307 CONNECTOR. PLACE THE ADAPTER ONTO THE CONNECTOR, PIVOTING THE LATCH SLIGHTLY UPWARD AND ONTO FRAME LATCH PINS. LOCK ADAPTER IN PLACE BY SWINGING CAM LEVER UP. TO REMOVE, SWING CAM LEVER DOWN, GRASP HANDLE AND LIFT OFF. 307 CONNECTOR MAY OR MAY NOT BE EQUIPPED WITH PROTECTOR UNITS. IT MAY BE NECESSARY TO MOVE ADAPTER SIDE TO SIDE TO ALIGN PINS.

Fig. 13—299A Test Adapter

5.02 The P2FL test cord (Fig. 14) is used to test a single protected pair. It consists of two spring-loaded contact terminals, and two 18-inch long cords equipped with alligator clips. It is used to short a pair, ground a shorted pair, or ground either side of a pair. It should not be used for service observing nor interconnected with other test cords or unrelated test equipment.

Fig. 14—P2FL Test Cord

5.03 Other test cords used on 307 type connectors are:

- W2GL - for accessing vacant protector unit positions
- W2GM - used with P2DB cord for breakdown test
- W4CT - for in and out testing
- W4CU - for manual and automatic Varley testing.

6. REFERENCES

6.01 The following AT&T Practices contain related information.

PRACTICE	TITLE
106-315-121	D,G,H,M,N,P,R,T,and U Test Connectors and 299A Test Adapter—Description and Use
201-208-810	307-Type Connectors—Repair Procedures
201-216-102	Cords and Plugs—Description—Miniature Test/Talk System
201-222-101	COSMIC I Subscriber Main Distributing Frame System —Description
201-222-102	Types of Protection—Description—COSMIC I Main Distributing Frame System
201-222-103	Common Systems Main Interconnecting Frame (COSMIC)—Warning Markers and Guards
201-222-105	78C and 112-Type Connecting Blocks—Description—COSMIC II Main Distributing Frame System
201-222-110	COSMIC IA, II, and IIA Main Distributing Frame Systems—Description
201-222-310	78C and 112-Type Connecting Blocks—Method of Cross-Connecting—COSMIC II Main Distributing Frame System
636-300-050	3-, 4-, and 5-Type Protector Units—Description and Use
636-330-107	307-Type Connectors—Description
640-250-248	Precabled Structures Using Bulk Protection—Remote Terminal Splicing (Metallic)—SLC Series 5 Carrier System
640-252-310	Concrete Hut (ED-7C285-30)—Splicing (Metallic and Fiber)—Combined SLC 96 and SLC Series 5 Carrier Systems
640-252-311	C Equipment Platform (ED-97973-31)—Splicing (Metallic and Fiber)—Combined SLC 96 and SLC Series 5 Carrier Systems
640-252-312	80-Type Cabinet—Description, Installation, and Splicing— Combined SLC 96 and SLC Series 5 Carrier Systems
801-005-164	Distributing Frames—COSMIC II Frame System—Equipment Design Requirements—Common Systems