302-, 303-, AND 305-TYPE CONNECTORS AND ASSOCIATED PROTECTOR UNITS

MAINTAINING PROTECTOR UNITS

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1. GENERAL

1.01 This section describes the method of maintaining the various protector units used with the 302-, 303-, and ▶305-type◀ connectors.

1.02 This section is reissued to add the 305-type connector and the 4A11C protector unit (mini-bridge lifter). The section title is revised to include the 305-type connector.

1.03 The purpose of central office protection is to ensure the safety of telephone personnel and to reduce the possibility and extent of equipment damage from foreign voltages or currents that may enter the office via the outside plant.

1.04 The 302-, 303-, and ▶305-type◀ connectors (Fig. 1, 2, and 3) provide features for voltage protection, sneak current protection, and facilities for disconnecting outside plant cable from central office equipment. These connectors are also used to interface between outside plant and central office equipment where no protection is required.

1.05 Maintaining protectors other than those used with 302-, 303-, and ▶305-type◀ connectors are covered in Sections 201-206-301 and 201-207-301.

1.06 If evidence is found or there is suspicion of abnormally high voltage conditions or contact between central office main frame terminations, observe the following precautions.

(a) Notify the office supervisor and test center.

(b) Notify other employees who may have occasion to work on the frame.

(c) Avoid all contact with associated frame terminations until authorized by the test center.

(d) If the test center requests that the protector units and associated circuits be inspected, wear insulation gloves to remove the protector unit.

Note: Insulation gloves shall be mechanically inspected before they are used in accordance with Section 075-141-501.

1.07 ▶The 429F and the 5A9D protector units have been changed from solder-plated to gold-plated tip and ring contact pins. All other protector units with solder-plated tip and ring contact pins have been rated manufacture discontinued. As stocks of protector units with solder-plated contacts are exhausted, orders for these protector units will be filled with units which have gold-plated contact pins.◀

2. DESCRIPTION

Protector Units For 302-, 303-, and 305-Type Connectors

2.01 ▶The protector unit codes used with the 302-, 303-, and 305-type connectors are listed in Table A. Protector units used with the 302-, 303-, and 305-type connectors are shown in Figures 4 through 8.◀

2.02 The 3B-type protector units and their predecessor (3A-types) are equipped with protector blocks and provide voltage protection only. ▶The 3B2A◀ protector unit (used to deny service) does not provide continuity between outside plant and central office cables.

2.03 Both voltage protection and sneak current protection are provided, respectively, by the protector blocks and heat coils in the 4A series protector units, except the 4A2C (used to deny service) has a dummy heat coil and does not provide continuity between outside plant and central office cables.

2.04 The 5A series protector units provide no protection and are used to maintain circuit continuity between outside plant and central office cables where no protection is required. The ▶5A2D◀ protector unit does not provide continuity between outside plant and central office cables.

2.05 ▶The 5A9D protector unit does not provide voltage protection or sneak current protection. It is internally connected to transpose tip and ring and is identified with an "X" cross on the face of the handle.

2.06 The 429F plug provides both voltage and sneak current protection. A circuit board (Fig. 8) transposes tip and ring and the plug is identified with an "X" cross on the face of the handle.

2.07 The 4A11C protector unit (mini-bridge lifter) contains a 410A switch as well as the standard protector blocks and heat coils which provide both voltage and current protection.

2.08 This device (Fig. 7) is a semiconductor switch type bridge-lifter. In the idle state, the semiconductor switches open, isolating the subscriber loop from the central office by adding impedance. In the active state, the semiconductor switches are closed, thereby removing the impedance from the subscriber loop.

2.09 This protector unit is used in central offices that are equipped with 302-, 303-, or 305-type connectors at the main frame. It may be used to bridge a maximum of four outside plant subscriber stations to the same central office subscriber line.

2.10 When the protector units are fully inserted into the connector panel, the outside plant and central office equipment are interconnected except for pairs equipped with the 3B2A, 3B6A, 4A2C, 4A6C, 5A2D, or 5A6D protector units.◀

2.11 When the protector unit is pulled out to the detent position, the central office equipment is disconnected to isolate the outside plant cable pairs for testing purposes or to deprive service. In this position, protection is still provided on the outside plant cable pairs. A small white marking on the neck of the finger grip of the protector unit is exposed when the protector unit is in the detent position.

3. REMOVING AND TESTING PROTECTOR UNITS

A. Removing Protector Units

3.01 To remove protector units from circuits which ***do not*** have abnormally high voltages present, grasp the handle of the protector unit and withdraw the unit from the connector jack.

3.02 When it is necessary to remove protector units from circuits which are suspected of having abnormally high voltages present, insulation gloves (note in paragraph 1.06) should be worn in all cases.

B. Testing Protector Units

3.03 ▶Protector units for the 302-, 303-, and 305-type connectors may be tested without disassembly (except for the 4A11C protector unit, see paragraph 3.04) for tip and ring continuity and shorted or grounded protector blocks by using the KS-20100L1 or L2 test set provided for this purpose. The KS-20100 test set also provides a burnout feature to clear protector blocks shorted by carbon or dust particles. Procedures for tests are covered in Section 201-208-501. If a protector unit for a 302-, 303-, or 305-type connector (except

for the 4A11C) is found to be defective, it should be discarded.

3.04 The 4A11C protector unit (mini-bridge lifter) is tested (without disassembly) using the 182A test set and the KS-20100L1 or L2 test set. The 182A test set tests the function of the 410A switch contained within the 4A11C protector unit as well as the carbon protector blocks and heat coils.

3.05 Protector units which fail the 182A test set should be retested on the KS-20100 test set and the burnout procedure applied. Retest the units with the 182A test set. The 4A11C protector units, which again fail, are defective and should be sent to the Western Electric repair facility. Do not discard a 4A11C protector unit.◀

▶TABLE A◀

PROTECTOR UNITS USED ON 302- 303- AND 305-TYPE CONNECTORS

SEE NOTE	CODE	CAP AND DESIGNATION PIN COLOR	PROTECTOR BLOCKS (1 PAIR EACH)	HEAT COILS (2 EACH)	FUSIBLE ALLOY DISCS	CONTACT PIN PLATING	CIRCUIT IDENTIFICATION	LIST NO OF KS-14174 DESIGNATION PIN
5	3B1A	Black	32A & 33B	None	Yes	Gold	Standard Circuit	*
2	3B2A	Green	32A & 33B	None	Yes	Gold	Open Circuit	4
	3B3A	Red	32A & 33B	None	Yes	Gold	Special Circuit	7
	3B4A	Yellow	32A & 33B	None	Yes	Gold	PBX Battery	5
1,5	3B5A	Black	32A & 33B	None	Yes	Solder	Standard Circuit	*
1,2	3B6A	Green	32A & 33B	None	Yes	Solder	Open Circuit	4
1	3B7A	Red	32A & 33B	None	Yes	Solder	Special Circuit	7
1	3B8A	Yellow	32A & 33B	None	Yes	Solder	PBX Battery	5
5	4A1C	Black	32B & 33B	80A	No	Gold	Standard Circuit	*
2	4A2C	Green	32B & 33B	81A	No	Gold	Open Circuit	4
	4A3C	Red	32B & 33B	80A	No	Gold	Special Circuit	7
	4A4C	Yellow	32B & 33B	79A	No	Gold	PBX Battery	5
1,5	4A5C	Black	32B & 33B	80A	No	Solder	Standard Circuit	*
1,2	4A6C	Green	32B & 33B	81A	No	Solder	Open Circuit	4
1	4A7C	Red	32B & 33B	80A	No	Solder	Special Circuit	7
1	4A8C	Yellow	32B & 33B	79A	No	Solder	PBX Battery	5
4	4A11C	Orange	32B & 33B	80A	No	Gold	Bridge Lifter	2
3,6,7	429F	White	32B & 33B	80A	No	Gold	Reversed Tip and Ring	
5	5A1D	Gray	None	None	No	Gold	Standard Circuit	*
2	5A2D	Green	None	None	No	Gold	Open Circuit	4
	5A3D	Red	None	None	No	Gold	Special Circuit	7
	5A4D	Yellow	None	None	No	Gold	PBX Battery	5
1,5	5A5D	Gray	None	None	No	Solder	Standard Circuit	*
1,2	5A6D	Green	None	None	No	Solder	Open Circuit	4
1	5A7D	Red	None	None	No	Solder	Special Circuit	7
1	5A8D	Yellow	None	None	No	Solder	PBX Battery	5
3,7	5A9D	White	None	None	No	Gold	Reversed Tip and Ring	

Note 1: Manufacture discontinued protector units-equipped with solder-plated contact pins for use in connectors of previous design with solder-plated contact terminals (302A2, 302B2, 303A2, and 303B2 which are manufacture discontinued). After existing stocks are exhausted, only protector units with gold-plated contact pins will be available for use in either the new or existing connectors.

Note 2: No continuity between outside plant and central office.

Note 3: Line reversing feature.

Note 4: Mini-bridge lifter (contains 410A Switch).

Note 5: If no designation pin is used, standard circuit is indicated.

Note 6: Designation is plug instead of protector unit.

Note 7: After existing stocks are exhausted, only protector units with gold-plated contact pins will be available for use in either the new or existing connectors.

*No designation pin used.

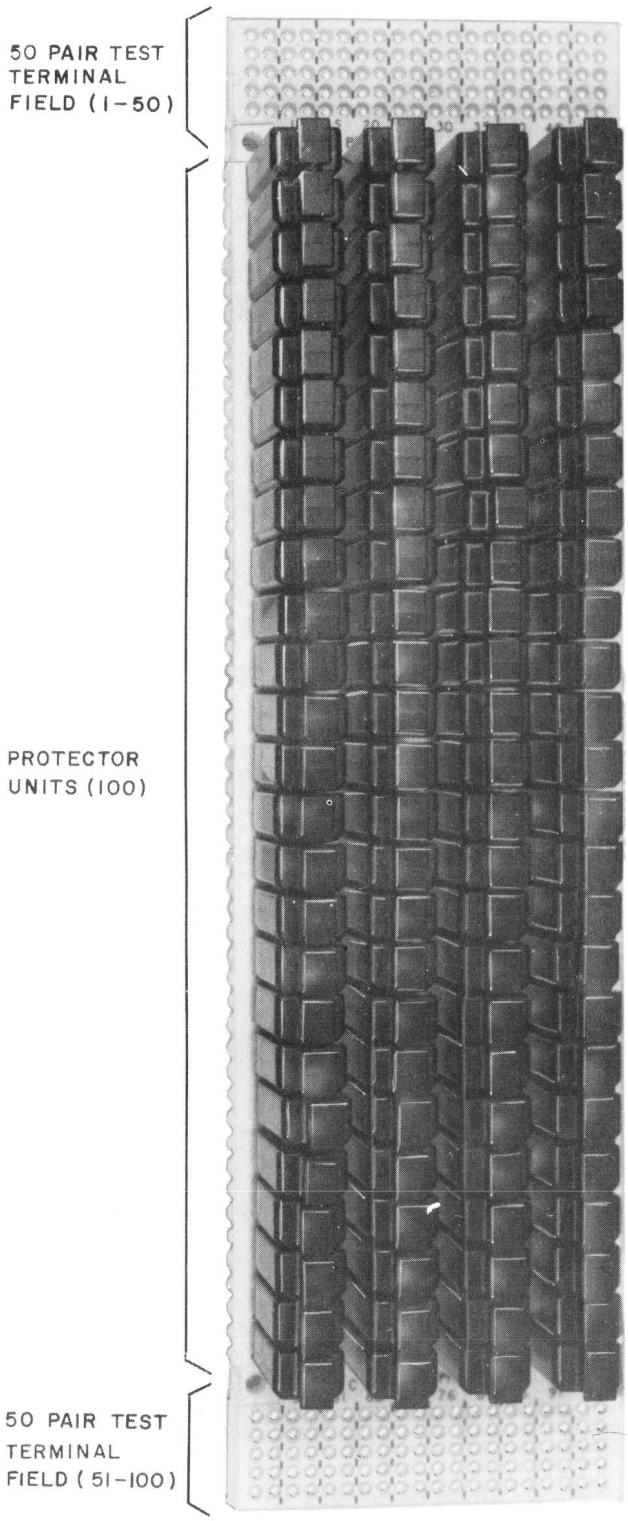

Fig. 1—302-Type Connector (With Protector Units Installed)

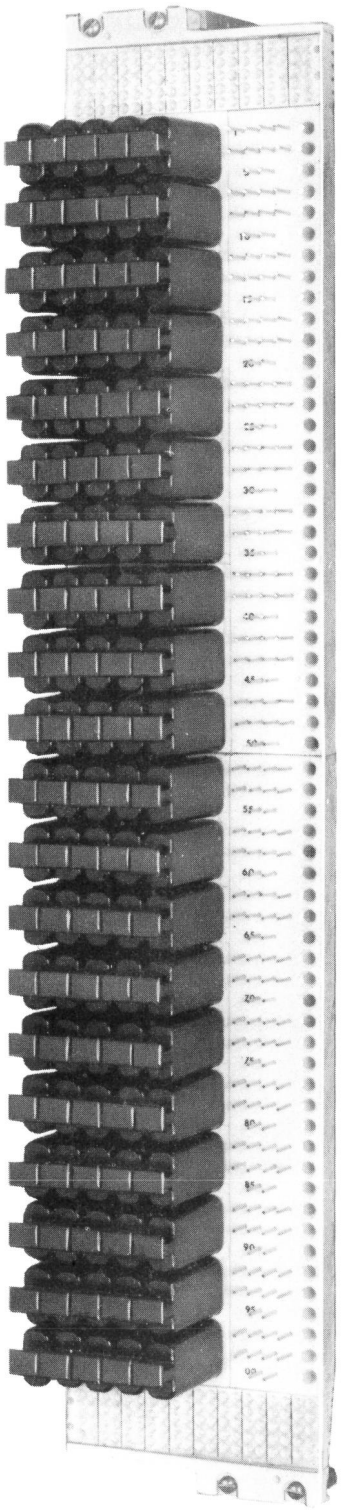

Fig. 2—303-Type Connector (With Protector Units Installed)

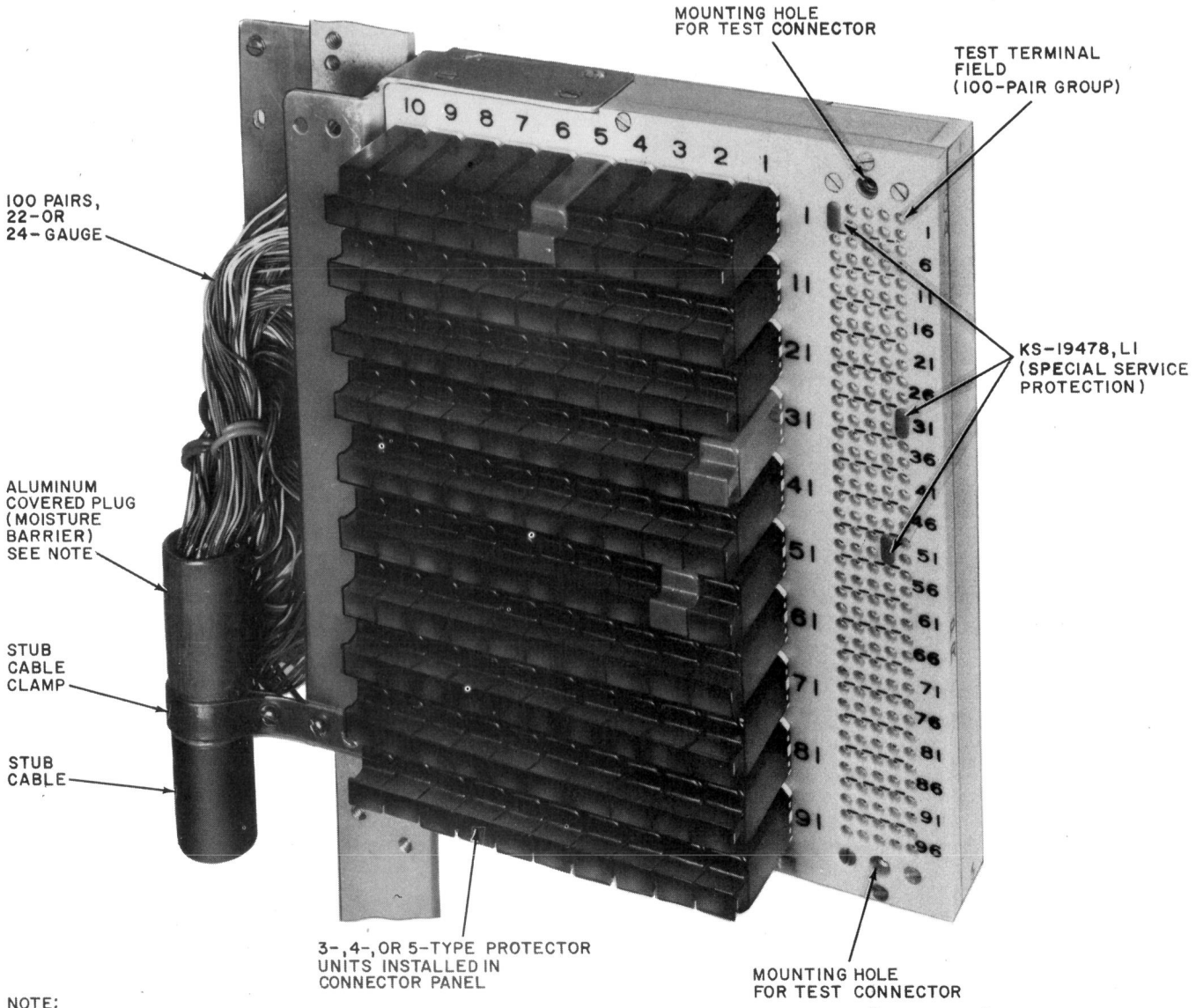

Fig. 3—305-Type Connector (With Protector Units Installed)

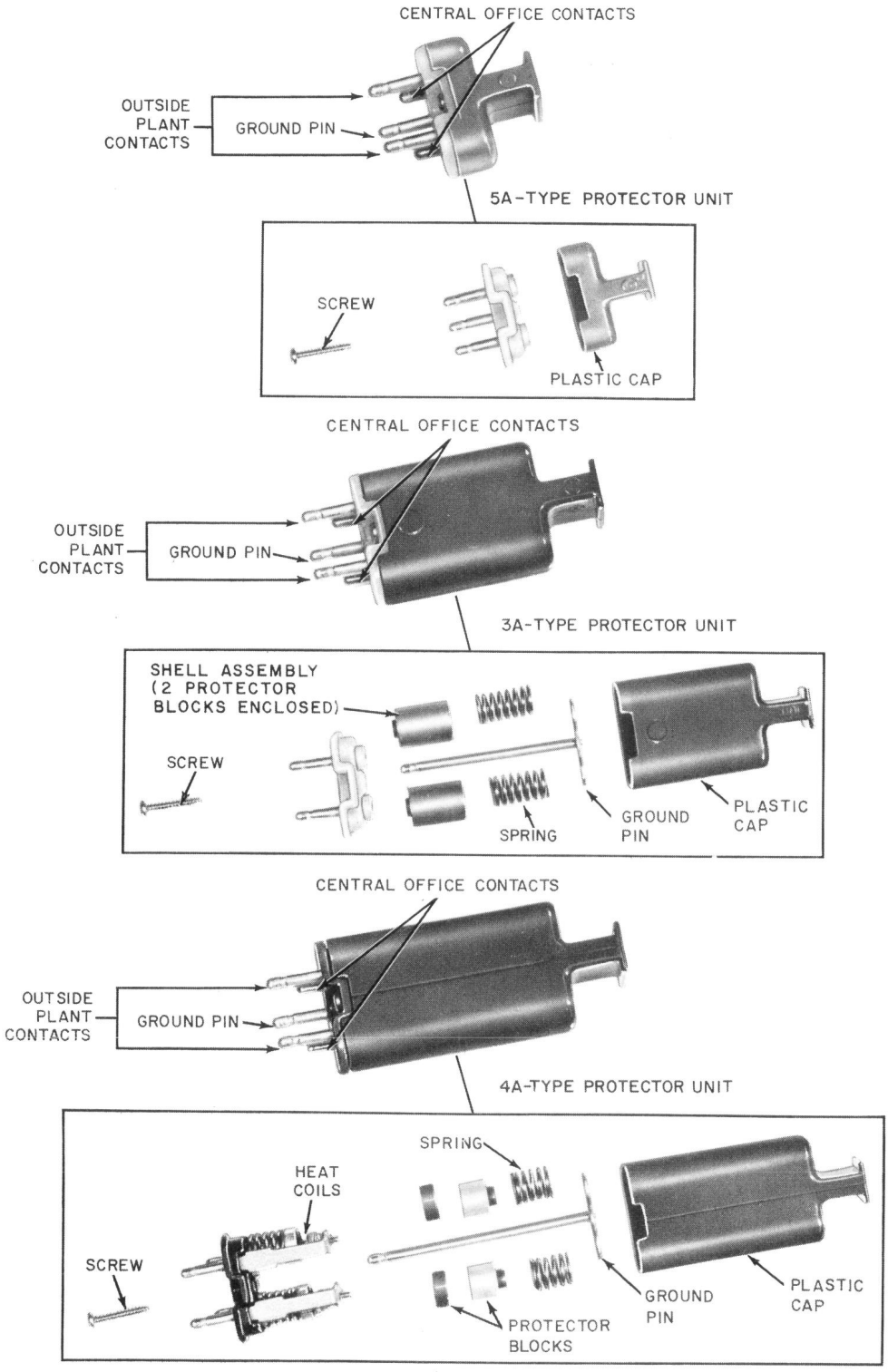

Fig. 4—3A-, 4A-, and 5A-Type Protector Units For Gold Plated Terminal 302-Type Connectors (Manufacture Discontinued)

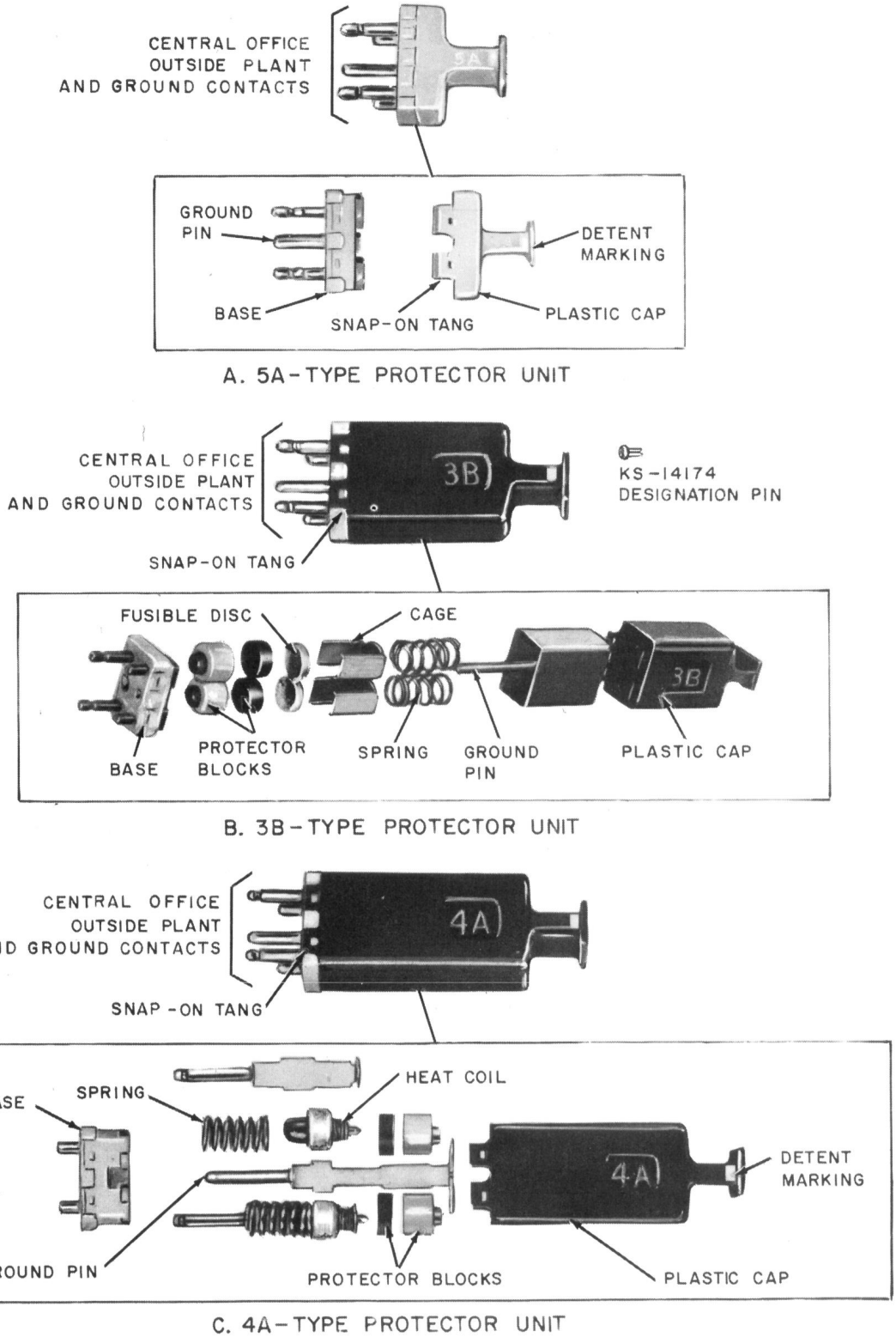

Fig. 5—3B-, 4A-, and 5A-Type Protector Units and Designation Pin for All 302-, 303-, and 305-Type Connectors

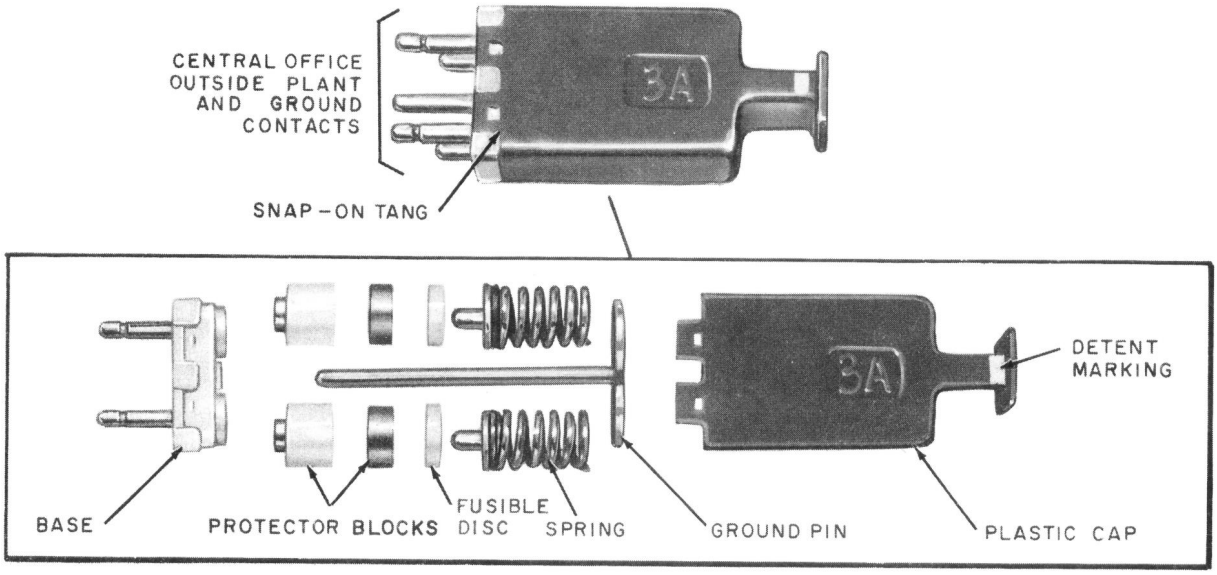

Fig. 6—3A-Type Protector Unit (Manufacture Discontinued)

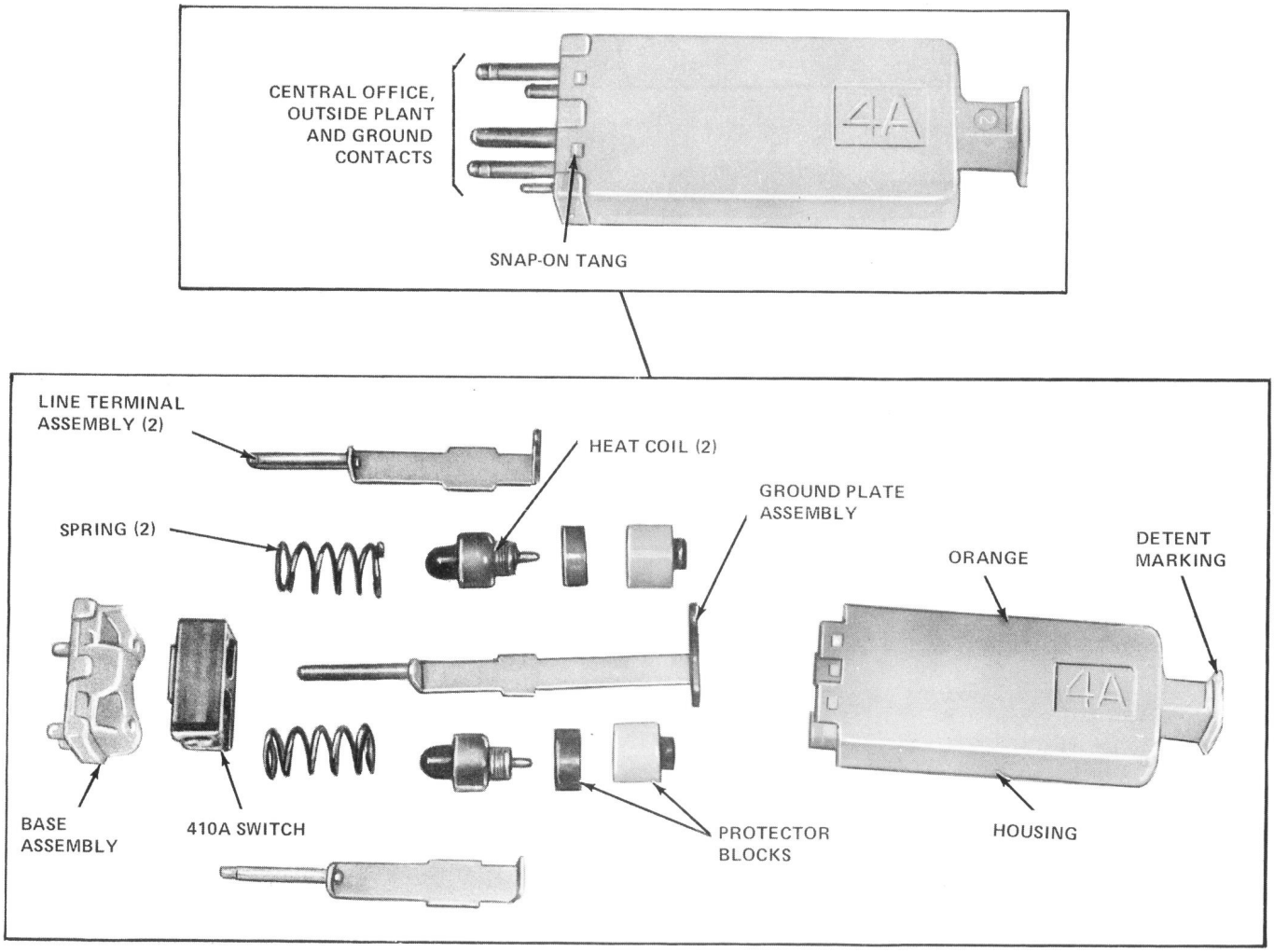

Fig. 7—4A11C Protector Unit (Mini-Bridge Lifter)

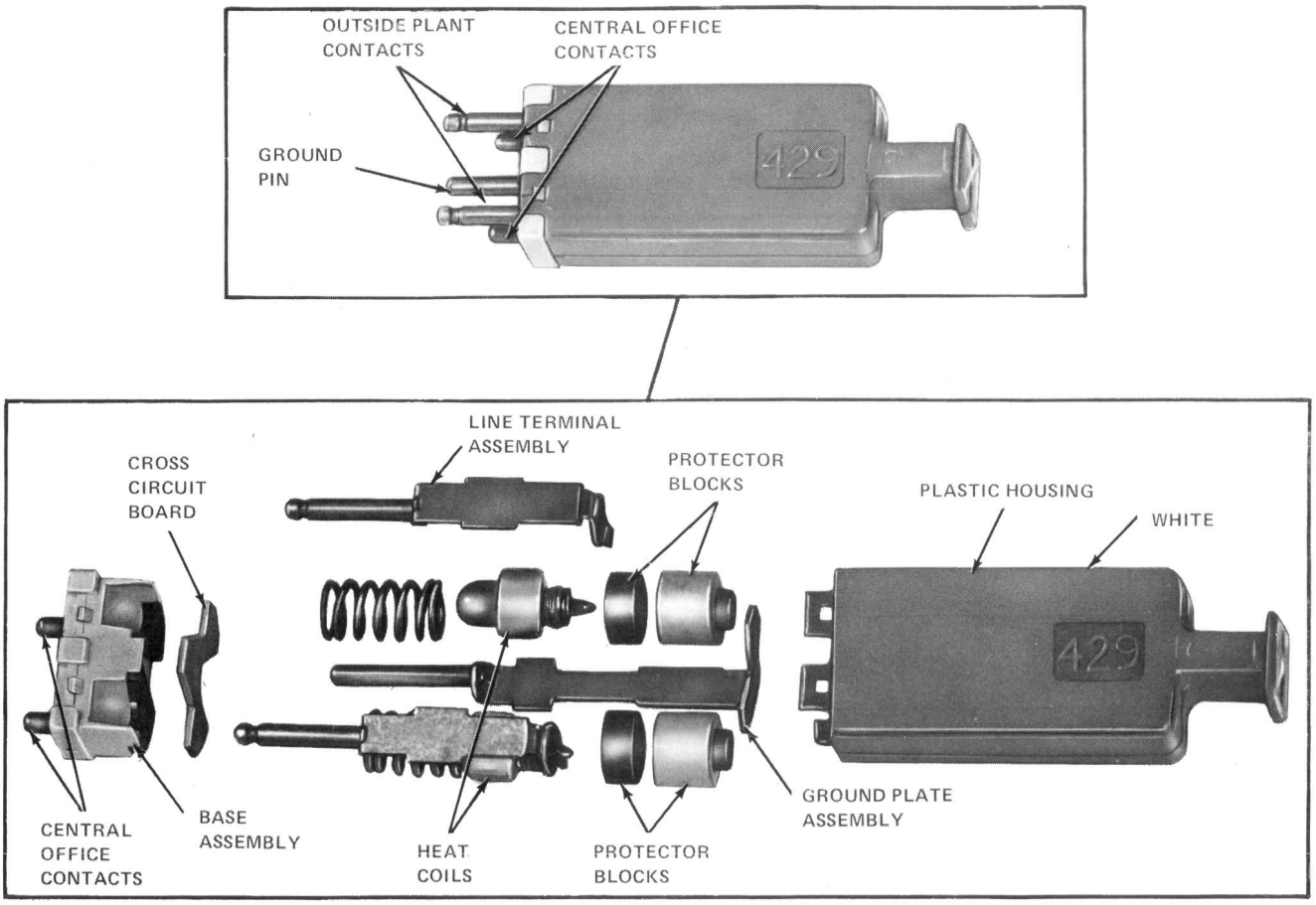

Fig. 8—429F Plug (Line Reversing)