

C-, E-, AND SIMILAR TYPE PROTECTORS INCLUDING 444-TYPE JACKS (301-TYPE CONNECTOR)

DESCRIPTION

1. GENERAL

- 1.01 This section describes the C-, E-, and similar type protector mountings and the 444-type jacks (301-type connector).
- 1.02 This section is reissued to change the title and to add the warning markers, guards, insulators and indicators used with the protectors and connectors described in this section. Revision arrows have been used to denote the significant changes. Equipment Test Lists are not affected.
- 1.03 The 300-type connector and associated protectors (replaced 121-type protector) are described in Section 201-207-101. The 302- and 308-type connectors are described in Section 201-208-101. ♦The 303- and 305-type connectors are covered in Section 201-208-105.♦

Note: The term *connector* is applied to distinguish the newer cable terminating devices (300-, 301-, 302-, 303-, ♦305- and 308-type♦ connectors) from the term *protector* which has been applied to cable terminating mounting assemblies such as the C50, E50, etc.

- 1.04 Protector mountings or 444-type jacks (301-type connector) are used to terminate outside cable conductors on main distributing frames or protector frames.
- 1.05 On B-type main distributing frames, the protector mountings or jacks are mounted on the vertical side of the frame. On double-sided protector frames, the protectors or jacks are mounted on the verticals on both sides of the frame.
- 1.06 The 444-type jack (301-type connector) does not provide protection and is used to terminate unexposed outside cable conductors.

1.07 The C-, E-, and similar protector mountings can be equipped with carbon blocks and heat coils for voltage and current protection when used with exposed cable conductors. Dummy blocks and heat coils are available for use with unexposed conductors. C- and E- protectors and mountings are rated MD (manufacture discontinued).

1.08 The class of conductors entering a central office and the protection required are covered in Sections ♦201-220-102 and 201-220-103♦ which describe types of protection.

1.09 Protector mountings or 444-type jacks also provide a means of gaining access to either the outside cable conductors or central office equipment for testing and maintenance purposes. Section ♦201-206-102♦ describes the various cords, plugs, and devices employed in testing or maintaining distributing frames equipped with 444-type jacks or C-, E-, and similar type protector mountings.

2. DESCRIPTION

- 2.01 The C-type protector mounting is shown in Fig. 1.
- 2.02 The C-type protectors (Fig. 2) are arranged for both heat coils and protector blocks and are intended for use in terminating exposed outside plant cables.
- 2.03 Other protector mountings similar to the C-type are shown in Fig. 3, 4, 5, and 6.
- 2.04 The E-type protector mounting is shown in Fig. 7.
- 2.05 The E50 and E52 protector mountings (Fig. 8) are arranged for protector blocks only and are intended for use in toll cable plant where current protection is not required.

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

2.06 The 444-type jack (301-type connector) is used to terminate unexposed cable conductors (Fig. 9) and does not provide protection.

Protector Blocks and Heat Coils

2.07 Figures 1 through 8 show the makeup of the usual types of B-type frame protector mountings. Figure 10 shows the various types of protector blocks and heat coils, including some early types still in use. Table A lists the standard types of heat coils and protector blocks and the corresponding older types.

3. WARNING MARKERS

3.01 Where abnormally high voltages are employed (such as breakdown tests), pairs subjected to high voltages shall be isolated from central office equipment and warning markers installed.

A. B-Type Frames Equipped With C-, E-, and Similar Type Protectors

3.02 The heat coils and carbon blocks are removed and a B warning marker is installed as shown in Fig. 11. The wire terminations are inspected and, if a bare conductor rests on a lug, an AT-6798 (7-type) terminal punching insulator is placed over the lug.

3.03 If the high voltage is applied at a point other than the central office, the maintenance personnel stationed at the cable form should watch for a breakdown. The maintenance personnel should watch the form, and in the event that smoke or a spark is observed, the B warning markers should be removed immediately. This will short-circuit and ground the pair, thereby indicating to the maintenance personnel applying the test that the fault has broken down and that further application of the test voltage is unnecessary. The marker should not be replaced nor the pair restored to normal until notified by the test desk or cable locating bureau according to local instructions.

Caution: While the test voltage is being applied and when removing the B warning marker, contact with protectors or cabling must be avoided.

B. B-Type Frames Equipped With 444-Type Jacks (301-Type Connector)

3.04 A P-11B721 fire block is installed over the terminal lugs, and then a 16A guard is placed in the jack of the cable pair to be tested as shown in Fig. 12. The 16A guard opens the contacts in the 444-type jack. The P-11B721 fire block prevents spreading of fire in the event arcing occurs. The block consists of an oval-shaped, semirigid, molded nylon tube approximately 2-1/2 inches long. A slot is provided along one edge to permit sliding the block over the lugs and bared conductors.

3.05 If the high voltage is applied at a point other than the central office, the maintenance personnel stationed at the cable form should observe for a breakdown. The maintenance personnel should watch the form, and in the event that smoke or a spark is observed, the person applying the voltage should be notified immediately.

Caution: The 16A guard must not be removed.

3.06 The guard should not be removed until notified by the test desk or cable locating bureau according to local instructions.

Caution: While the test voltage is being applied, contact with the protectors or cabling must be avoided.

3.07 If no evidence of breakdown is noted, the 16A guard should not be removed until notified by the test desk or cable locating bureau according to local instructions. If a fire block was installed at the time the 16A guard was placed on the pair, it should be removed when the guard is removed.

4. GUARDS, INSULATORS, AND INDICATORS

4.01 On main distributing frames, guards, insulators, and indicators are used to prevent service interruptions, equipment damage, and personal injury.

A. B-Type Frames Equipped With C-, E, and Similar Type Protectors

4.02 The KS-14539, L5 or L6 (Mfr Disc) guard (Fig. 13) should be placed to enclose the front portion of the heat coil and protector block

springs. These guards are held in place by ridges on the inner surface which engage the heat coil springs. In addition to identifying important circuits, the color will serve as a marker to warn against accidental contact with the circuit involved and against removal of the heat coils and protector blocks during maintenance operations. The KS-14539, L10 and L11 guard (which supersedes the KS-14539, L5 and L6) completely encloses the circuit on C-type protectors. This guard may be used with a cable tie to prevent accidental removal of the guard. When the KS-14539 plastic guard is used on a designated cable pair of a C-type protector, the cable number designation plate, form E5293, is removed from the heat coil spring and attached to the guard.

KS-14539, L10 and L11 Guard (Fig. 14)

4.03 The KS-14539, L10 and L11 guard is a red, flame retardant plastic wrap-around guard with a beaded cable tie, designed to insulate, protect, and designate special service protection (SSP) and special safeguarding measures (SSM) circuit pairs on C50 and C52 protectors. The KS-14539, L10 is the guard which is used **only** when **SSP** is required; the KS-14539, L11 is the **guard and cable tie** which is used when **SSM** is required (Fig. 14).

4.04 The KS-14539, L10 guard is used in place of two KS-14539, L6 guards (Mfr Disc) and four terminal punching insulators to designate and insulate a circuit pair on the C50-type protector. The physical design of the L10 allows a dislodged heat coil to fall directly to the floor level, thus preventing an accumulation of dislodged heat coils and possible short circuit.

4.05 The KS-14539, L10 and L11 guard is installed as shown in Fig. 15. When **SSM** is required, the L11 is installed by threading the beaded cable tie through the keyhole slot on one end of the guard, around the fanning strip, and through the keyhole slot on the opposite end. The tie is then drawn tight, locked in place and cut, leaving the end of the cable tie approximately one inch long.

D. Frames Equipped With 444-Type Jacks (301-Type Connector)

4.06 In addition to the KS-6660 or KS-16847, L1 indicators and AT-6798, L4 and L5 punching insulators, special circuits should be further protected

by using a KS-20353, L1 guard which replaces the 12A and 12B guard. The KS-20353, L1 guard consists of a molded red thermoplastic material having a cavity on one side and a rectangular hole through the other side. Figure 16 shows the KS-20353, L1 guard, and insulators mounted on a 444-type jack.♦

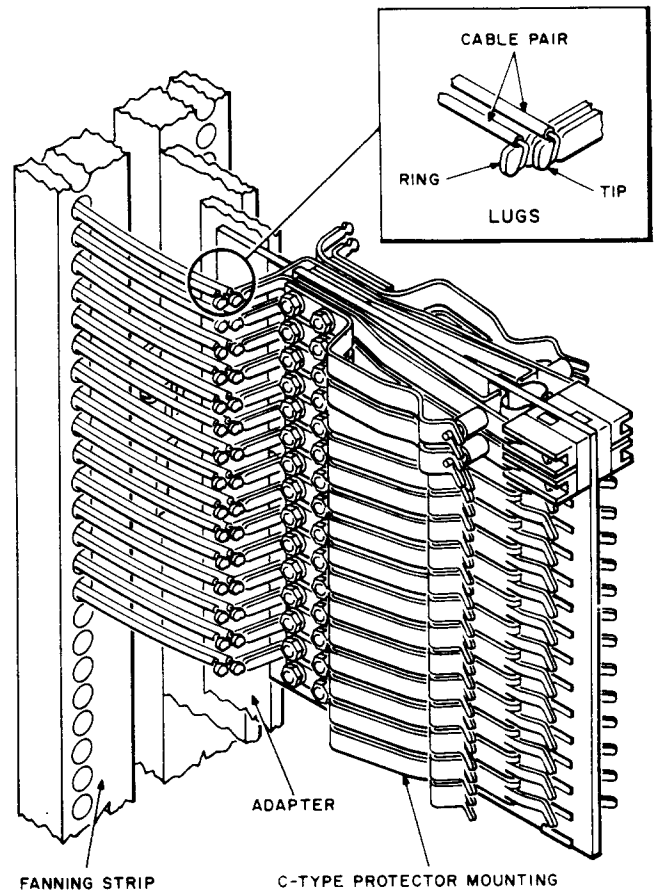


Fig. 1—C-Type Protector Mounting

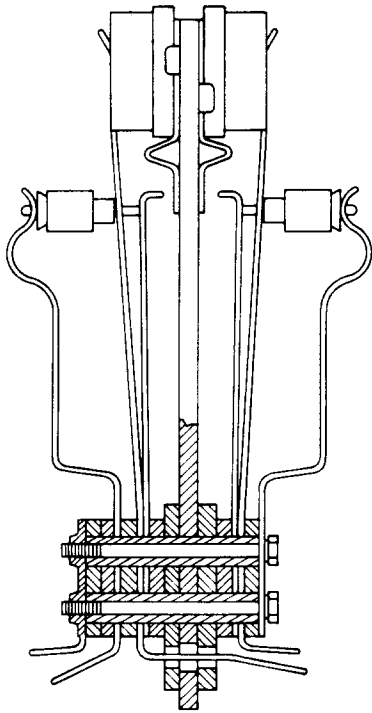


Fig. 2—C50A and C52A Protectors—C50 and C52 Protector Mountings

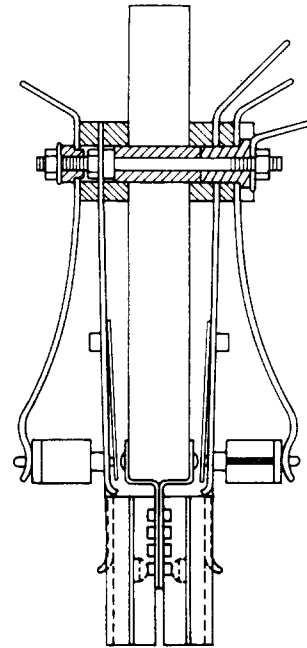


Fig. 4—87AA and 87BA Protectors—64A Protector Mounting

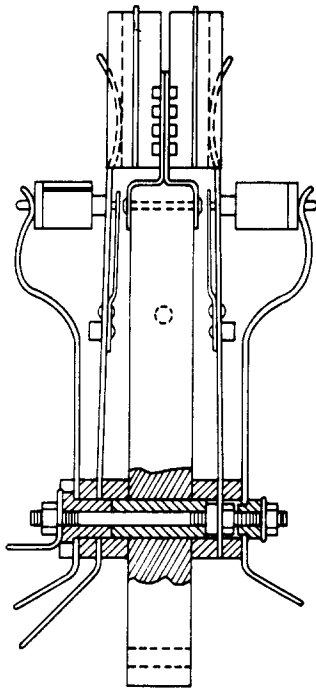


Fig. 3—4A and 4C Protectors—10-Type Protector Mounting

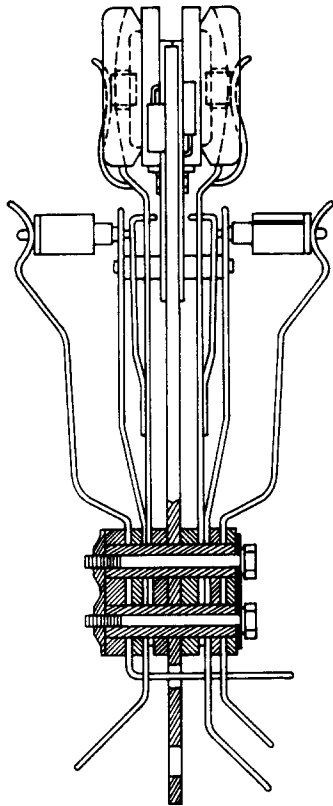


Fig. 5—1268A, 1268B, and 1269A Protectors—68A, 68B, and 69A Protector Mountings

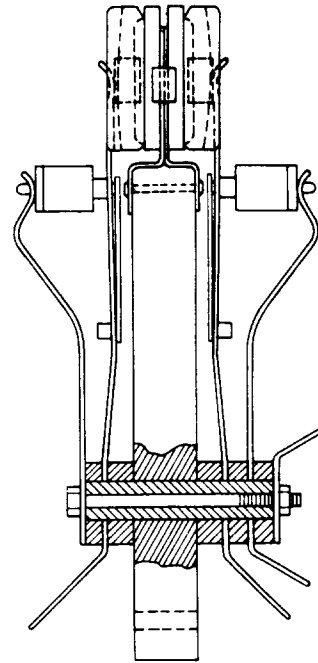


Fig. 6—1177A and 1177B Protectors—77A and 77B Protector Mountings

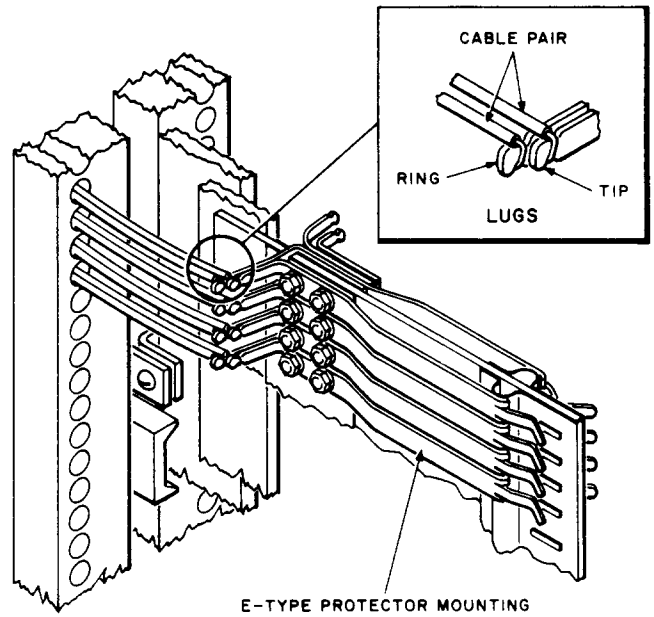
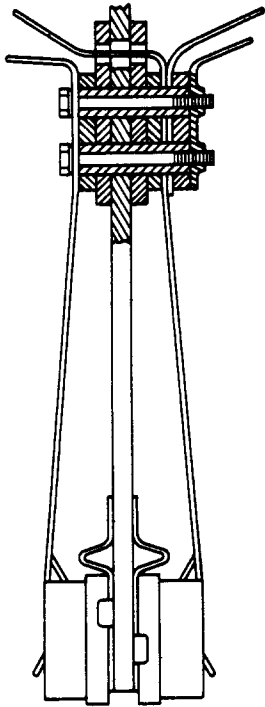


Fig. 7—E-Type Protector Mounting



**Fig. 8—E50A and E52A Protectors—E50^o and E52
Protector Mountings**

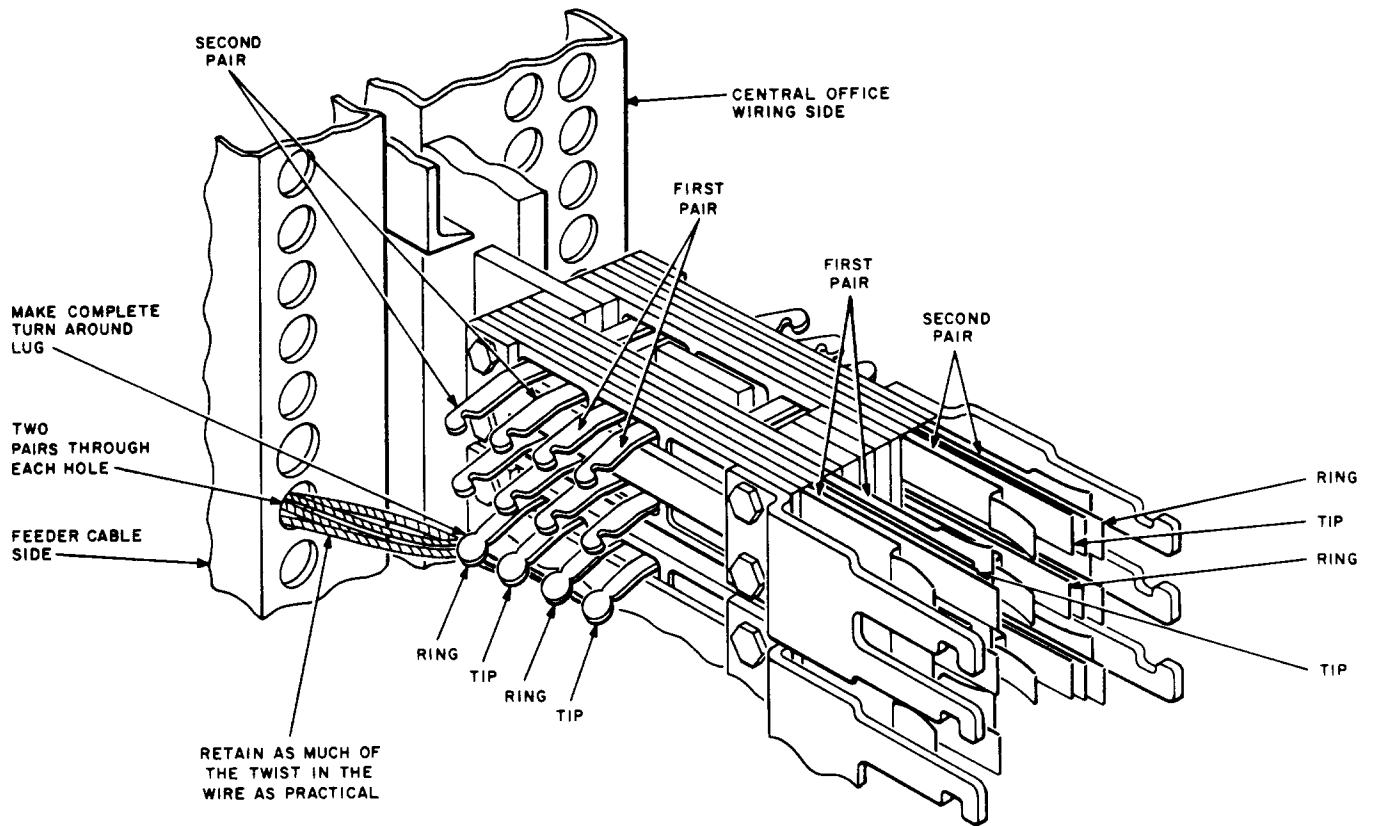


Fig. 9—44-Type Jack (301-Type Connector) Mounting and Terminating

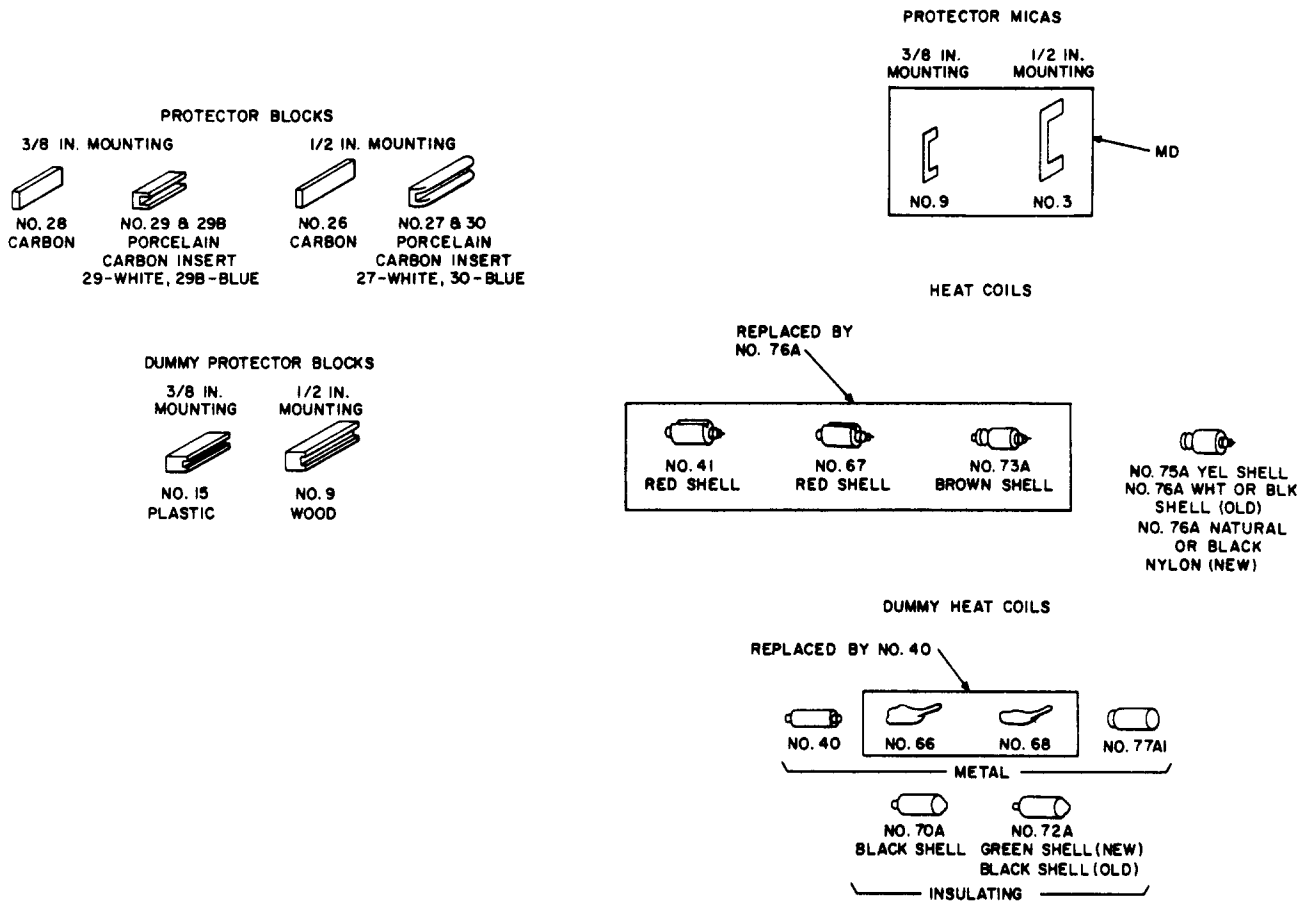


Fig. 10—Types of Protector Blocks and Heat Coils

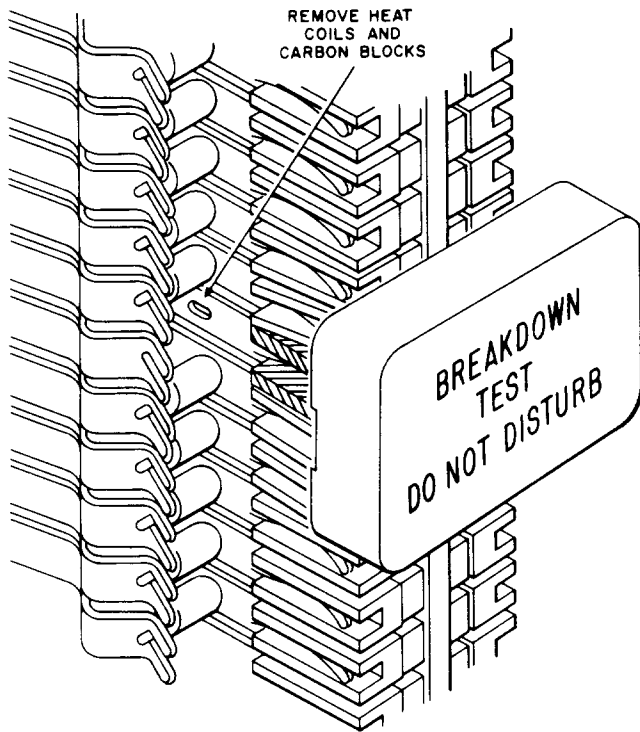
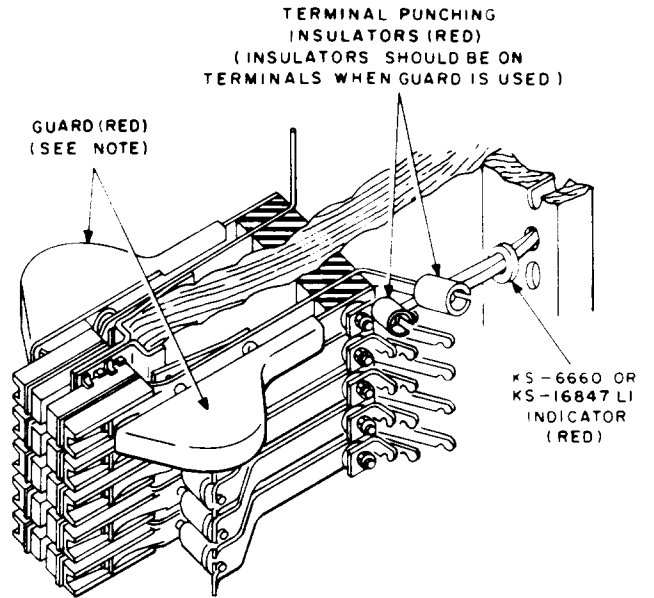


Fig. 11—B Warning Marker



NOTE:

KS-14539 GUARD LIST NO.	PROTECTOR TYPE
5. (SUPERSEDES L1)	I177
6. (SUPERSEDES L2)	C TYPE AFTER 1946
7. (SUPERSEDES L3)	I268, I269
8. (SUPERSEDES L4)	C TYPE PRIOR TO 1946
9.	E
10. (SUPERSEDES L6)	C TYPE AFTER 1946
11. L10 GUARD USED WITH CABLE TIE (FIG. 12).	

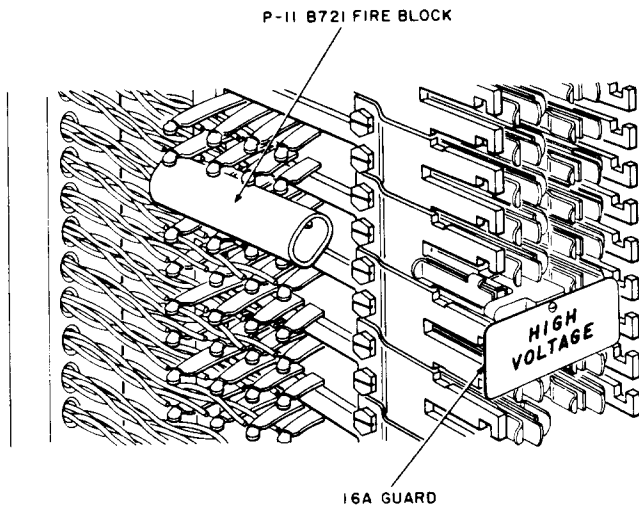


Fig. 12—Protecting B-Type Frames With 444-Type Jacks (301-Type Connector)

Fig. 13—KS-14539, L6 Guard (Mfr Disc) on Protector Mounting

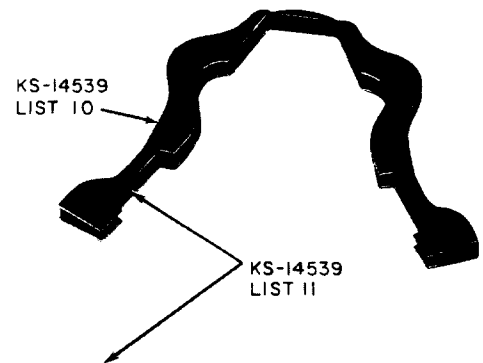


Fig. 14—KS-14539, L10 and L11 Guard

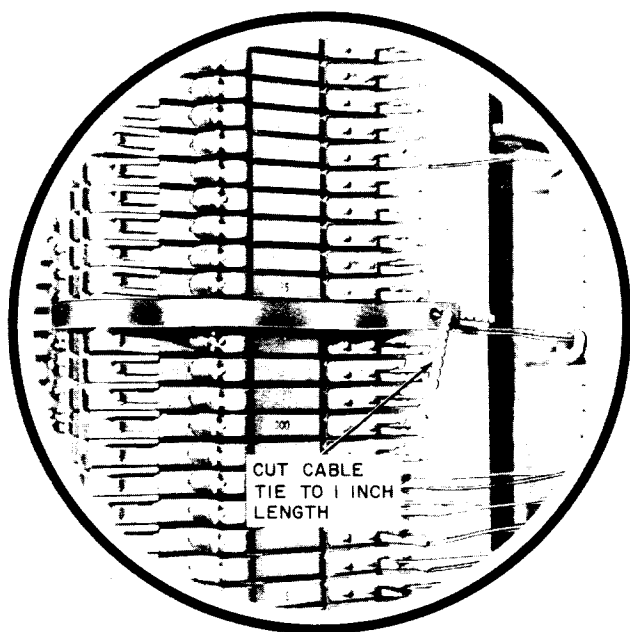


Fig. 15—KS-14539, L11 Guard Installed on C50-Type Protector

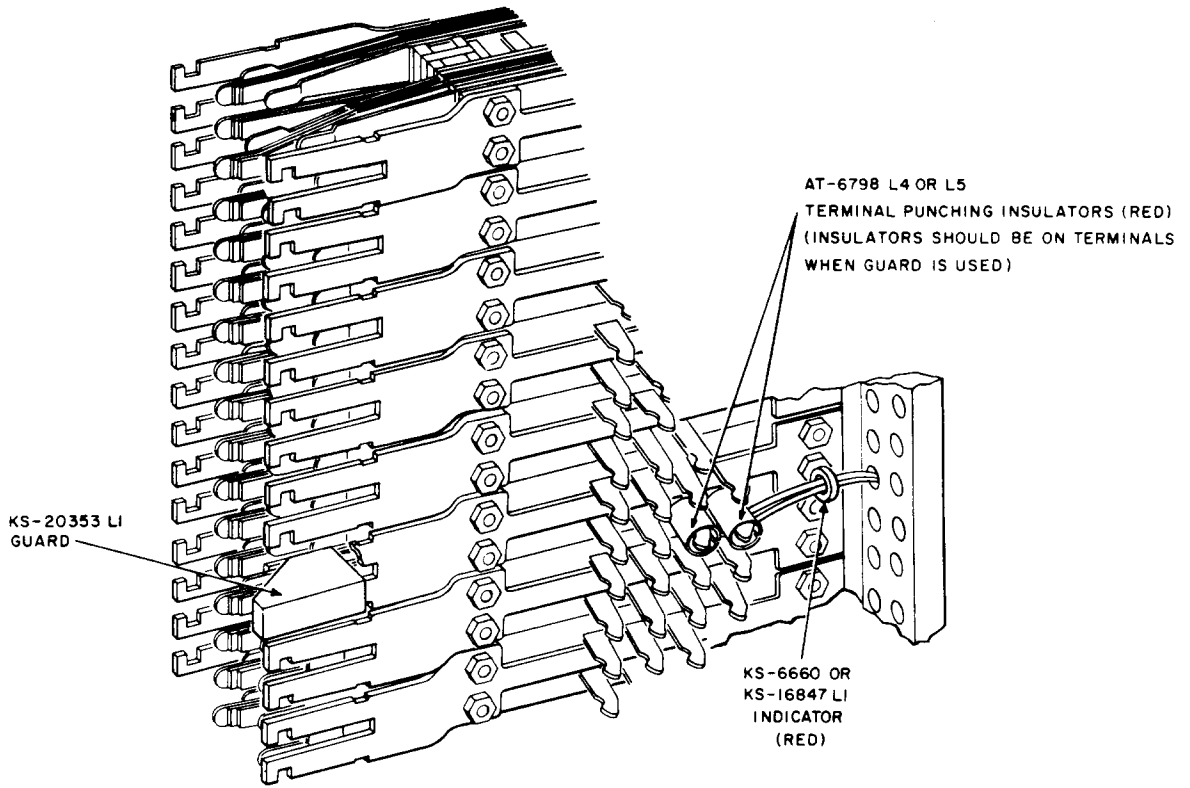


Fig. 16—KS-20353, L1 Guard on 444-Type Jack (301-Type Connector)

TABLE A

PROTECTOR BLOCKS AND HEAT COILS

TYPE OF BLOCK OR COIL			STANDARD	OLDER TYPES (MD)
Protector Blocks	Ground Side	3/8-inch mounting	28	*11
	Line Side		‡ 29	*12
Protector Blocks	Ground Side	1/2-inch mounting	26	†1
	Line Side		‡ 27	†2
Dummy Protector Blocks	3/8-inch Mounting		15	—
	1/2-inch Mounting		9	—
Heat Coils	Battery Feeders		75A	—
	All Other Lines Requiring Heat Coils		76A	41, 67, 73A
Dummy Heat Coils	Metal		40	66, 68
	Insulating		§ 72A	§ 70A

* Use 9-type protector micas with 11- and 12-type protector blocks.

† Use 3-type protector micas with 1- and 2-type protector blocks.

‡ Use 29B- and 30-type protector blocks instead of 29- and 27-type, respectively, where the MDF protector mountings are connected to drainage coil assemblies.

§ The 70A and 72A dummy heat coils are insulating dummy coils used in the protectors of lines which are to be kept open as an indication that regular heat coils are not to be put in.