

## 189-TYPE PROTECTORS

### DESCRIPTION AND INSTALLATION

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**1. GENERAL**

**1.01** This practice covers the description and installation of the 189-type building entrance protectors used as station protectors in buildings served by exposed cable. These protectors have been approved by Underwriters Laboratories (UL) *for indoor use only.*

**1.02** This practice is reissued for the following reasons:

- (1) To include new codes of the 189-type protector

(2) To include the availability of a padlock adapter kit.

In addition to the above specific changes, this practice has been completely reorganized and is considered a general revision. As a result, no revision arrows have been used.

**1.03** For additional information on 66-type hardware, refer to the following practices:

PRACTICE	TITLE
462-265-201	Wiring at Main Building Terminals Using Quick-Connect Hardware
631-050-108	66-Type Connecting Blocks—Description and Use
631-460-201	Building Terminals—Main Terminals Using 66-Type Quick-Connect Hardware
636-300-050	3-, 4-, and 5-Type Protector Units—Description and Use.

2. DESCRIPTION

2.01 The 189-type modular protectors (Fig. 1 through 8) are combination protector and ter-

minating fields with outputs through 66-type connectors or female microribbon connectors. Mechanical and security protection is available, if desired, with the latching hinged cover and provisions for a pad-lock.

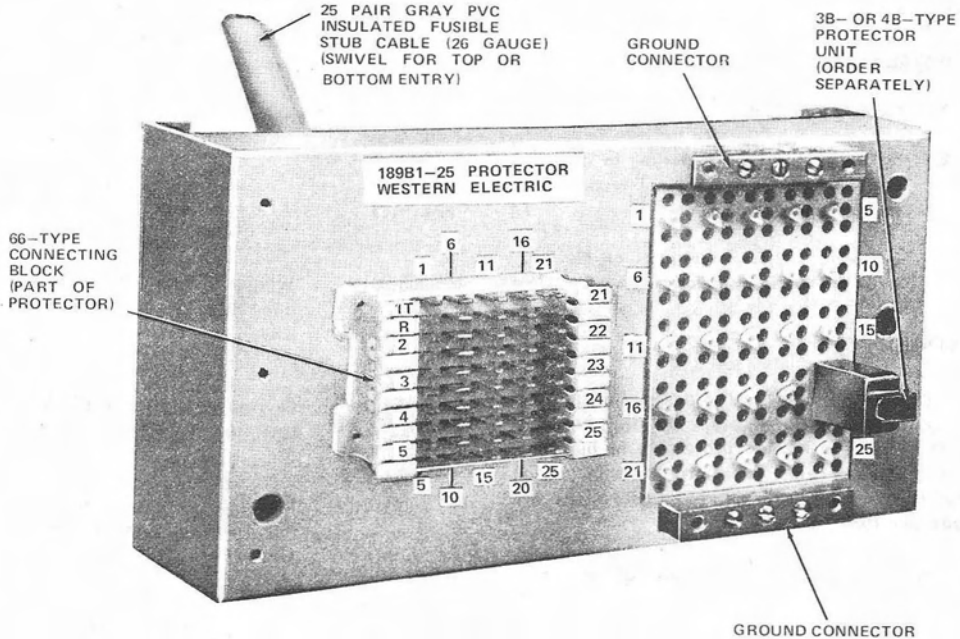


Fig. 1 — 189B1-25 Protector

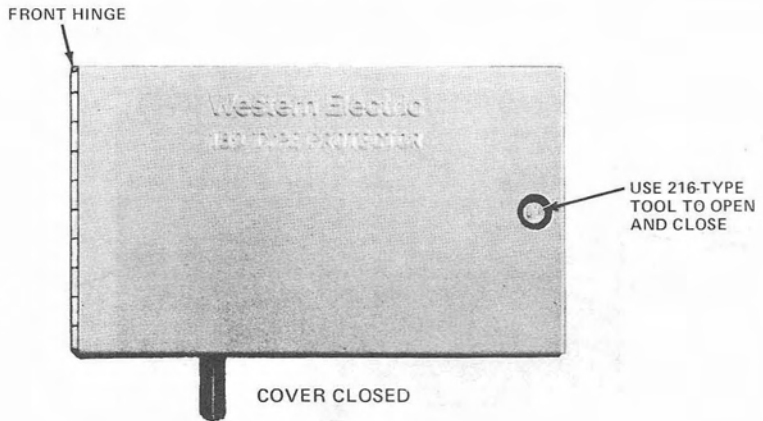
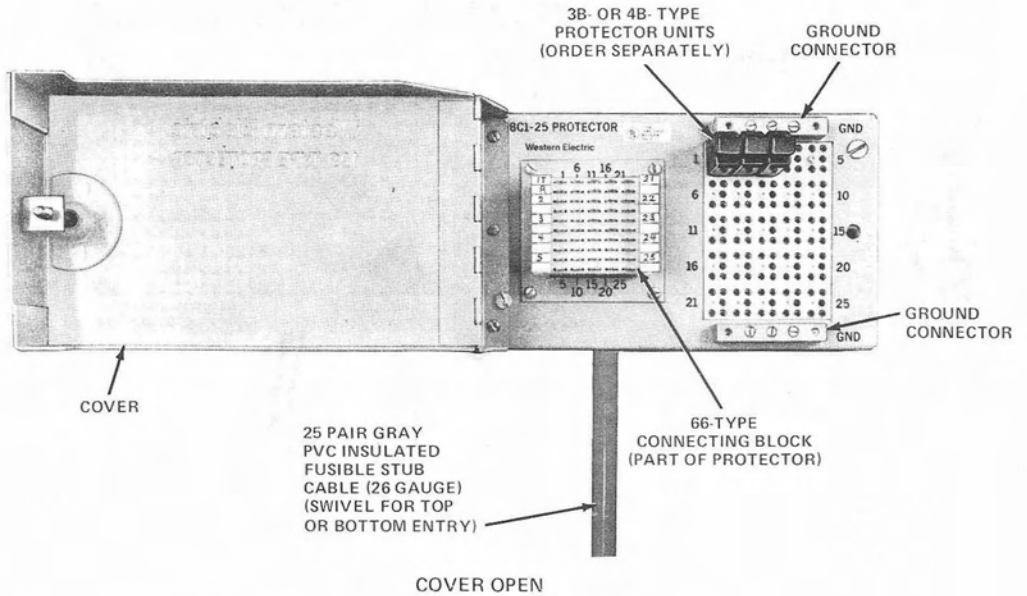
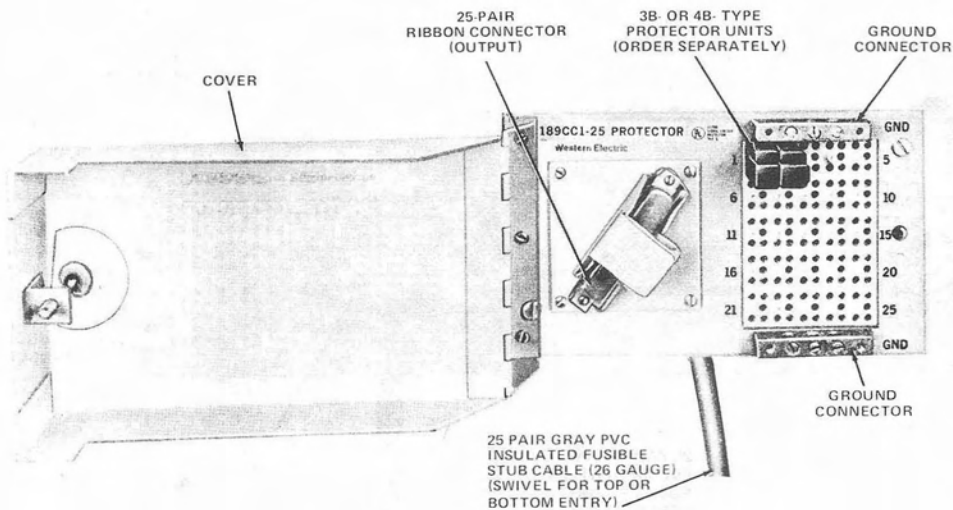
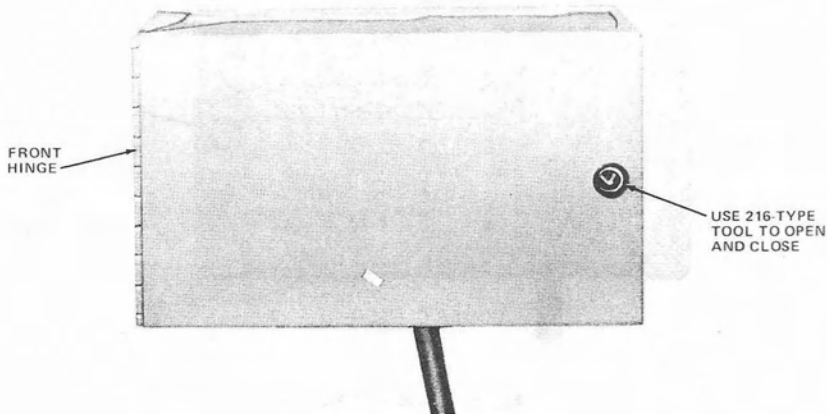


Fig. 2—189BC1-25 Protector



COVER OPEN



COVER CLOSED

Fig. 3—189CC1-25 Protector

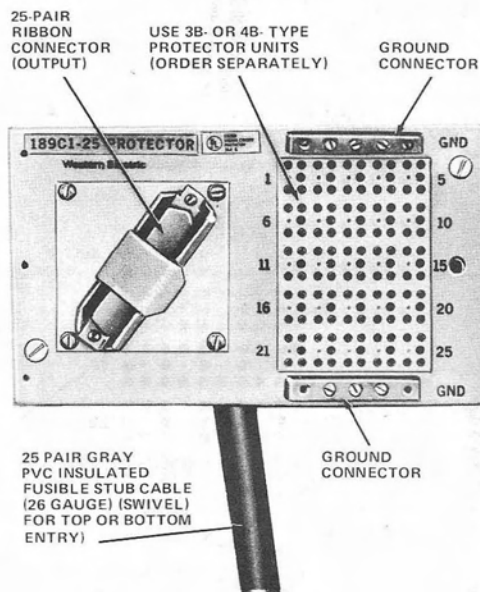


Fig. 4—189C1-25 Protector

50 PAIR GRAY PVC INSULATED FUSIBLE  
STUB CABLE (26 GAUGE) SWIVEL FOR  
TOP OR BOTTOM ENTRY

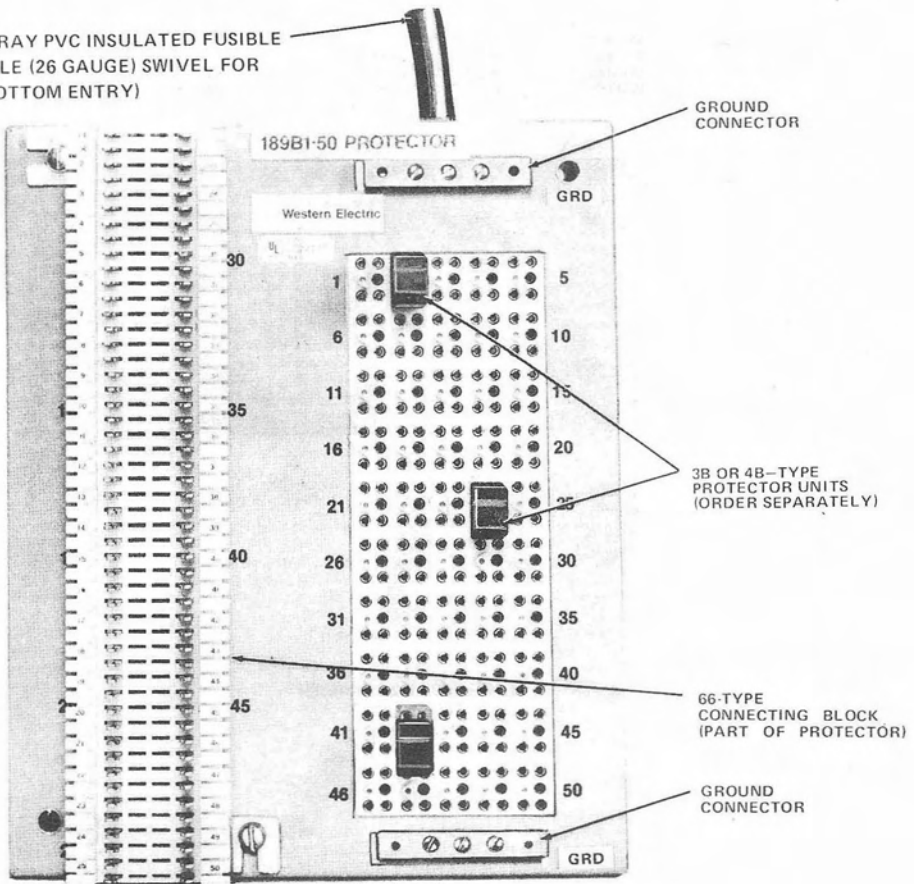
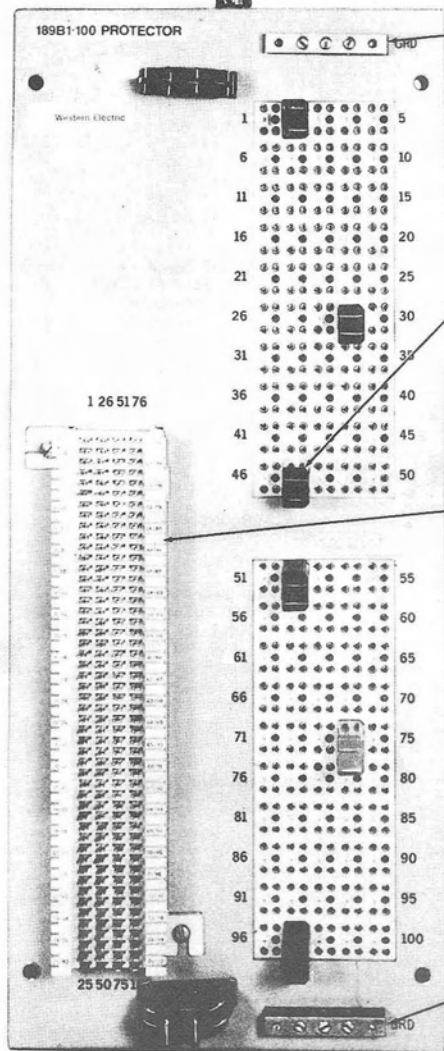


Fig. 5—189B1-50 Protector

100 PAIR GRAY PVC INSULATED FUSIBLE  
STUB CABLE (26 GAUGE) (SWIVEL FOR  
TOP OR BOTTOM ENTRY)



GROUND  
CONNECTOR

3B- OR 4B-TYPE  
PROTECTOR UNITS  
(ORDER SEPARATELY)

66-TYPE  
CONNECTING BLOCK  
(PART OF PROTECTOR)

GROUND  
CONNECTOR

Fig. 6—189B1-100 Protector

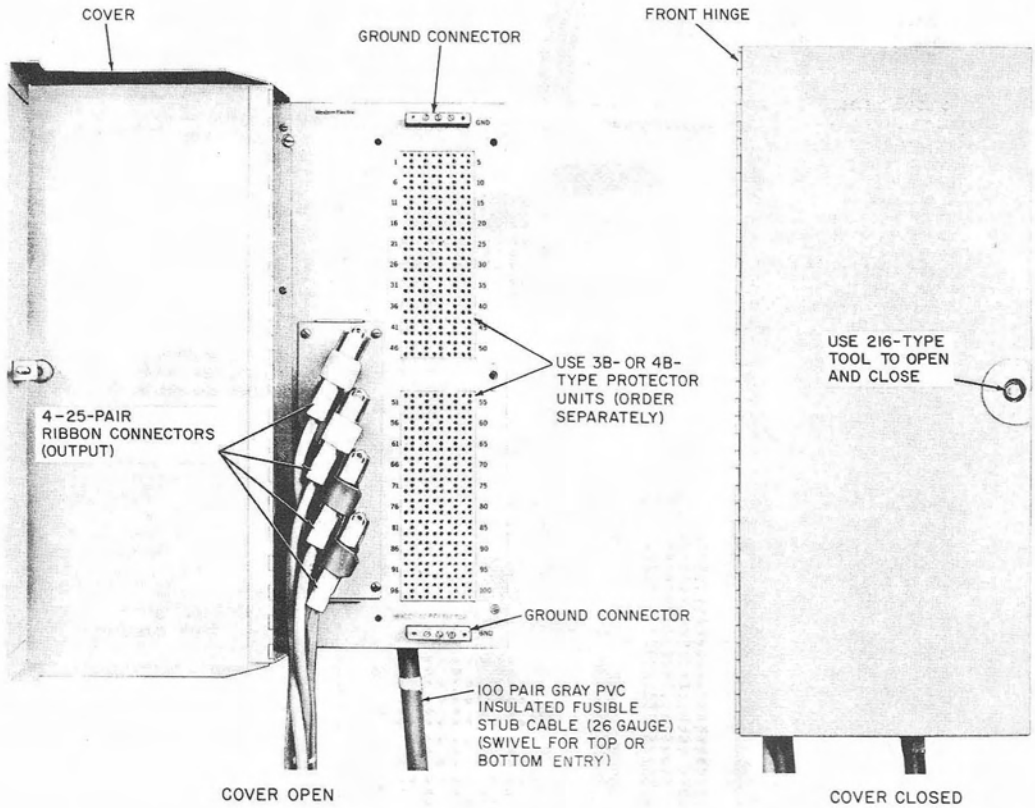


Fig. 7—189CC1-100 Protector



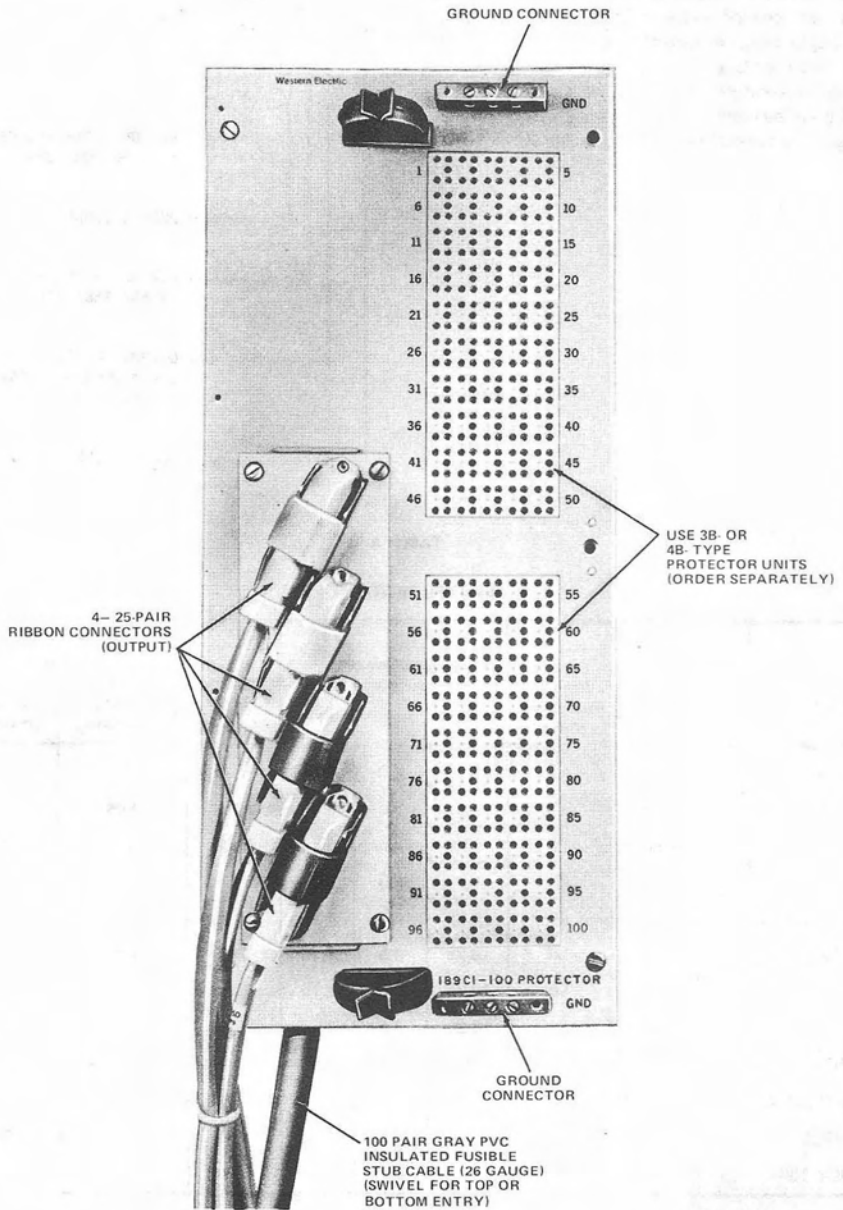
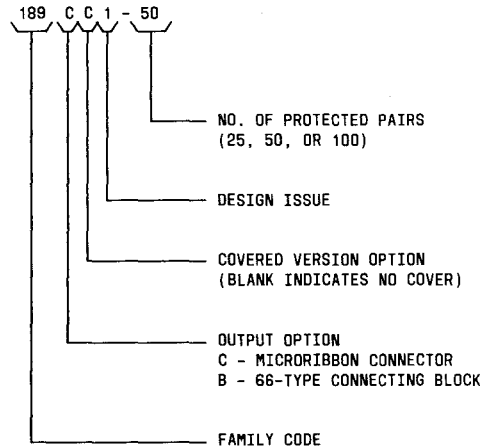


Fig. 8—189C1-100 Protector

**2.02** The protectors (Table A) provide electrical protection at building entrance terminals for 25, 50, or 100 exposed feeder cable pairs by using the 3B- or 4B-type plug-in protector units. The protector units are not furnished with the protector and must be ordered separately. The 3B3A or 4B3C protector unit (red housing) may be used to designate those circuits requiring special service protection (SSP).

**2.03** The coding scheme for the 189-type protectors is as follows:



**TABLE A**

**189-TYPE PROTECTORS**

PROTECTOR CODE	FIG. NO.	NO. OF STUB CABLE PAIRS (NOTE)	NO. OF PROTECTOR UNITS	DIMENSIONS (IN.)			EQUIPPED WITH COVER	OUTPUT	
				LENGTH	WIDTH	DEPTH		66-TYPE CONNECTORS	MICRORIBBON CONNECTORS
189B1-25	1	25	25	5	8.5	4.5		Yes	
189BC1-25	2	25	25	5	8.5	4.75	Yes	Yes	
189CC1-25	3	25	25	5	8.5	4.75	Yes		Yes
189C1-25	4	25	25	5	8.5	4.5			Yes
189B1-50	5	50	50	10.25	8.5	4.5		Yes	
189BC1-50	—	50	50	10.25	8.5	4.75	Yes	Yes	
189CC1-50	—	50	50	10.25	8.5	4.75	Yes		Yes
189C1-50	—	50	50	10.25	8.5	4.5			Yes
189B1-100	6	100	100	20	8.5	4.5		Yes	
189BC1-100	—	100	100	20	8.5	4.75	Yes	Yes	
189CC1-100	7	100	100	20	8.5	4.75	Yes		Yes
189C1-100	8	100	100	20	8.5	4.5			Yes

**Note:** All protectors are equipped with a 25-foot, 26-gauge fusible stub cable.

2.04 The left side of the modular protector is equipped with either a 66-type connecting block or microribbon connector(s). It is factory wired to the protectors. Figures 9 and 10 show the wiring diagram for the 189-type protectors.

2.05 The protectors are equipped with a 25-foot nonpressurized 26-gauge PVC insulated stub cable. This stub cable provides the fuse cable requirement for building entrance cable. The stub cable of the 189-type protectors swivel to provide either a top or bottom entry.

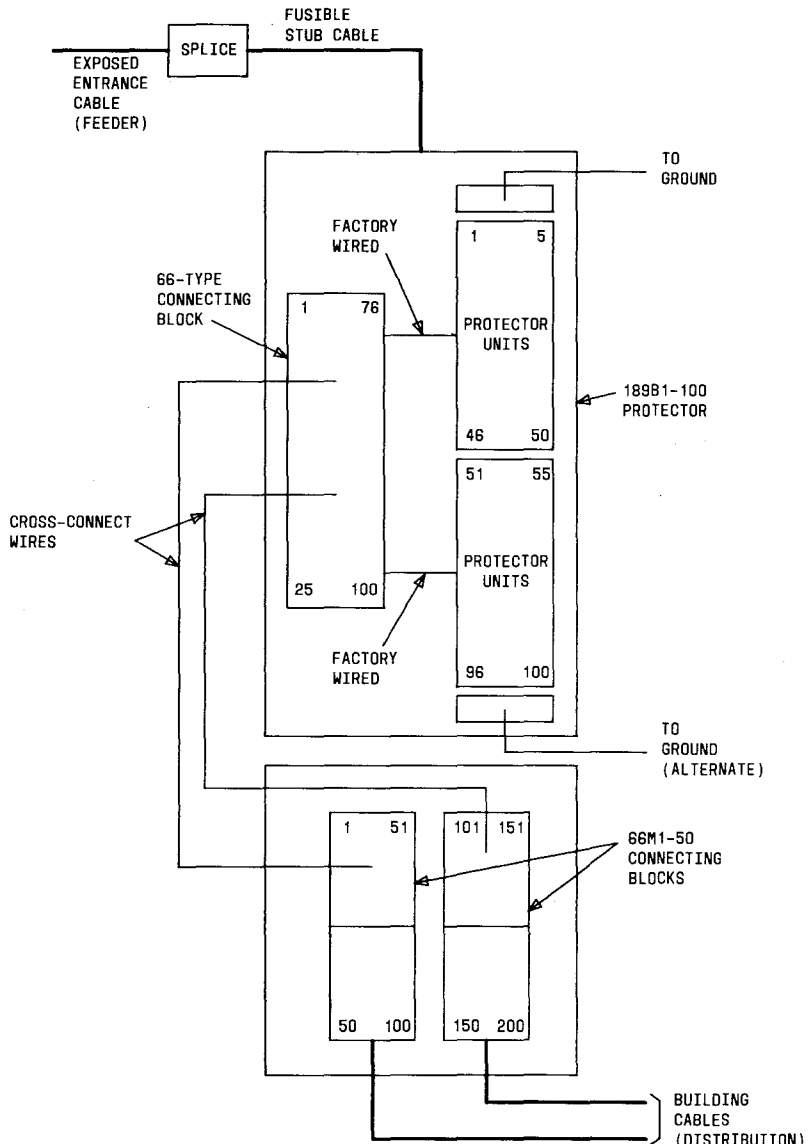


Fig. 9—Wiring Diagram for 189-Type Protector With 66-Type Output

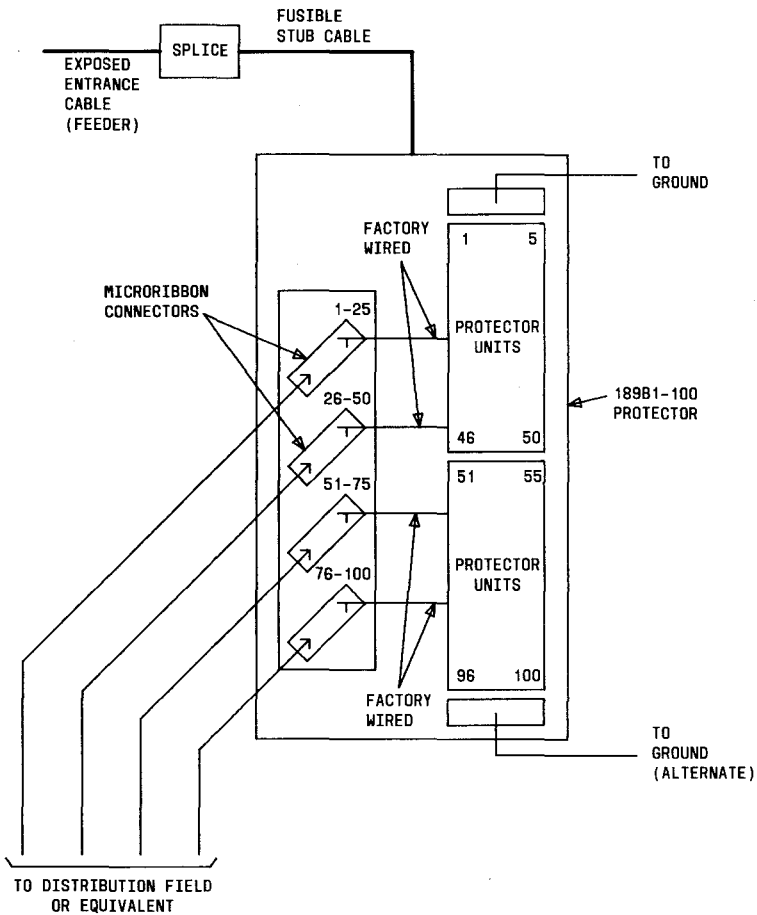


Fig. 10—Wiring Diagram for 189-Type Protector With Microribbon Connector Output

**2.06** A 3-wire ground connector is provided at the top and bottom of each protector housing to bond housings together and for terminating a No. 6 ground wire from an approved ground (Section 631-400-102).

### 3. INSTALLATION

**3.01** The 189-type protectors may be mounted on 3/4-inch thick, AD grade, interior plywood or high density particle board (particle board used for floor underlayment is *not* suitable as density and screw-holding power are too low). The 189-type protectors without covers may be mounted in cabinets such as the 3A- and 4A-type cable terminal sections (Section 631-400-101) where mechanical protection is required.

#### A. Locating Terminals

**3.02** Locate the terminal in accordance with the detail plans. If the specified location is inadequate from an installation or maintenance standpoint, refer to the engineer for review.

**3.03** Locate the terminal:

- (a) Inside a building as near as practical to the cable entrance into the building.
- (b) Where it will not be near flammable material or in the vicinity of easily ignitable gases and dust.
- (c) Where it will be least conspicuous.
- (d) Where it will not project in such a manner as to be hazardous.

- (e) Where good lighting conditions exist.
- (f) Where it will be accessible without the use of a ladder.
- (g) Where it will be possible to work without blocking a passageway.
- (h) Where it will not be subjected to severe moisture under normal conditions or possible submersion in the event of a flood.
- (i) Where it will not be subjected to high temperature such as occurs near radiators, uncovered steam pipes, etc.
- (j) Away from electric light and power circuits and electrical equipment. (Refer to Section 627-610-205 for minimum clearances.)
- (k) Where it will not be damaged by moving machinery, hoists, doors, or materials handled on loading platforms, etc.
- (l) On a firm mounting surface.
- (m) Where adequate space is provided above and below for cables and/or splices.

#### B. Mounting 189-Type Protectors in 3A- and 4A-Type Cable Terminal Sections for Mechanical Protection

**3.04** Install the required number of 3A-type cable terminal sections at the terminal location as outlined in Section 631-400-101.

**3.05** Install the 189-type protector(s), 187-type backboard, and 183-type backboard (equipped with four 89B brackets), as shown in Fig. 11 and 12. Screws for installing the 189-type protector are furnished with the protector. The 187-type backboard shall be placed between the 189-type protector and the 66-type connecting blocks in each vertical column.

**3.06** Remove the required length of plastic jacket and underlying metallic shield from the end of the **building** cable(s). Feed the building cable(s) through the entrance hole(s) in the bottom of the cable terminal section.

**3.07** Install bond clamp on the building cable(s) in accordance with the procedures covered in Section 081-852-118.

**3.08** Feed the binder groups into the channels behind the 89B brackets equipped with 66M1-50 connecting blocks.

**3.09** Connect the cable pairs in color-code sequence to the 66M1-50 connecting blocks as outlined in Section 631-050-108.

**Note:** Check to assure that no short pieces of cut conductors are wedged in the wiring slots, thus preventing a solid connection.

**3.10** Splice the 26-gauge stub cable from the 189-type protector to the exposed central office feeder cable. When the stub is spliced to an exposed cable (air core or waterproof) containing **400 pairs or less, a metallic sealed splice closure must be used.** The cross section of smaller size cables does not provide an adequate current-carrying capacity to protect the splice in the event of a power contact.

**Note:** Waterproof cable shall not be used for general distribution within buildings. It may be used as an entrance facility provided a transition to air-core cable is made within a metallic, sealed splice closure. It must never be fanned out and terminated directly on protector and/or connectors within a building.

**3.11** The exposed entrance cable (air core or waterproof) must be grounded within 50 feet of the building entrance to provide adequate protection of the customers building against fire. Section 631-400-102 covers the method of bonding or grounding and the selection of an acceptable ground.

**C. Mounting 189-Type Protectors on Plywood or High Density Particle Board**

**3.12** Starting at the left-hand side of the selected area, mount the 189-type protector(s) to this surface.

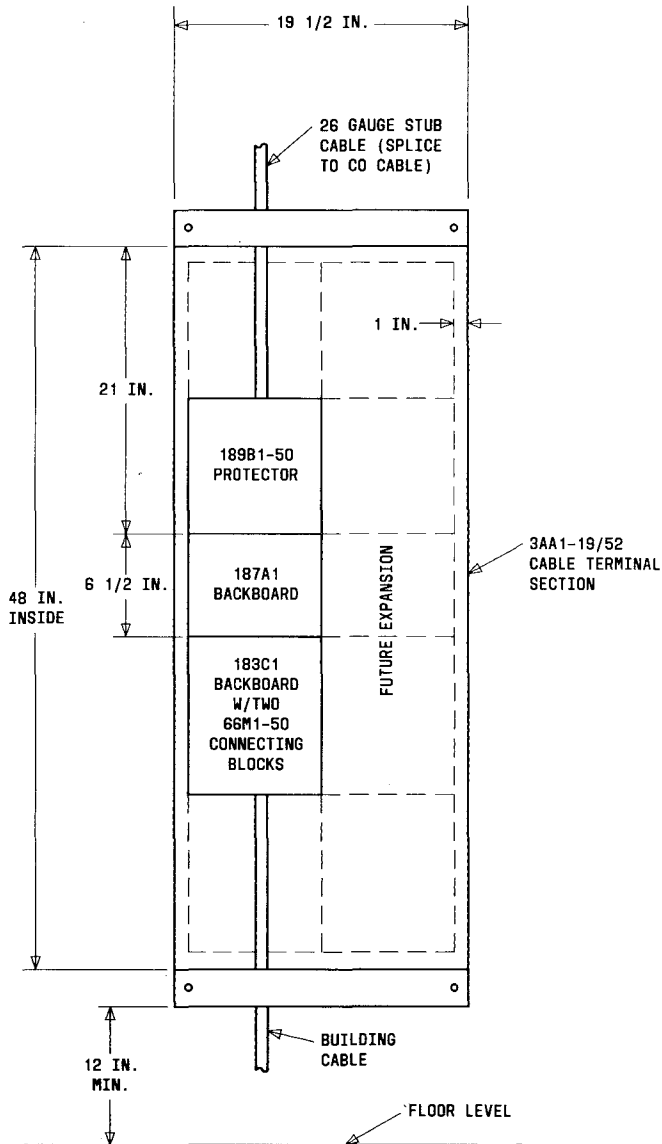


Fig. 11—50-Pair Entrance Cable—100-Pair Building Cable — Installed in 3A-Type Cable Terminal Section for Mechanical Protection

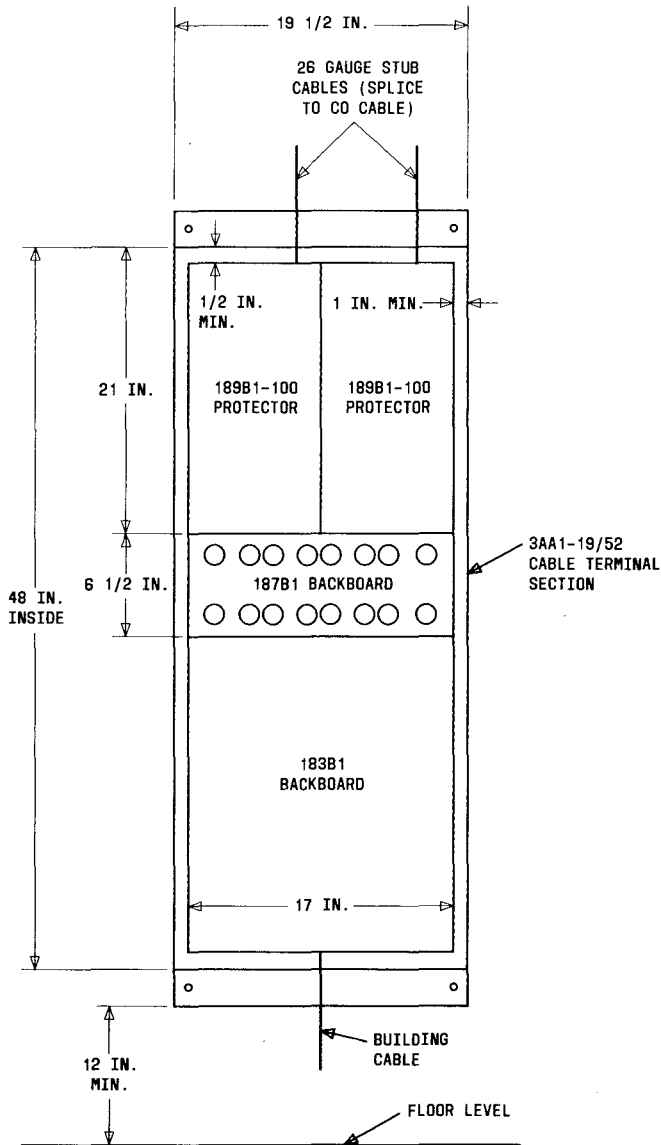


Fig. 12—100-Pair Entrance Cable—200-Pair Building Cable—Installed in 3A-Type Cable Terminal Section for Mechanical Protection



3.13 Mount the 187A1 backboard, 183-type backboard, and 66M1-50 connecting blocks as shown in Fig. 13 through 16.

3.14 Install bond clamp on the building cable(s) in accordance with the procedures covered in Section 081-852-118.

3.15 Feed the building cable binder groups into the channels behind the 89B brackets and place the cable conductors on the 66M1-50 connecting blocks in color-code sequence as outlined in Section 631-050-108.

3.16 Splice the 26-gauge stub cable(s) to the exposed central office feeder cable as outlined in paragraph 3.10.

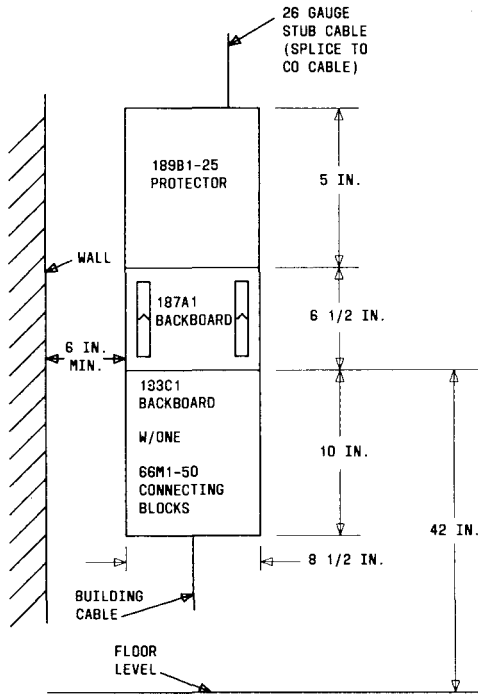


Fig. 13—25-Pair Entrance Cable—50-Pair Building Cable

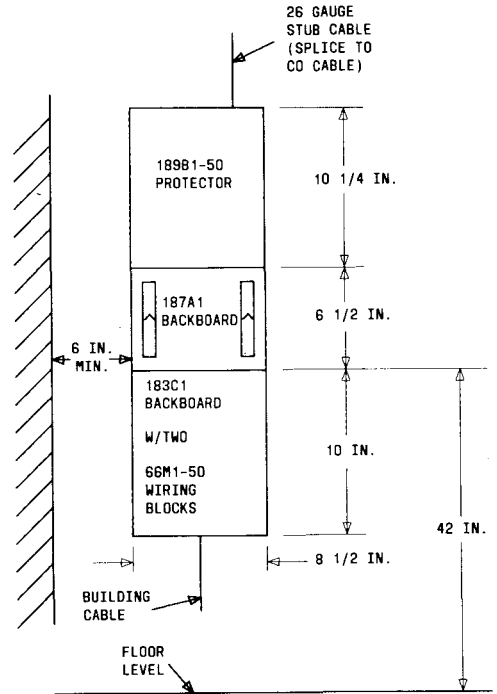


Fig. 14—50-Pair Entrance Cable—100-Pair Building Cable

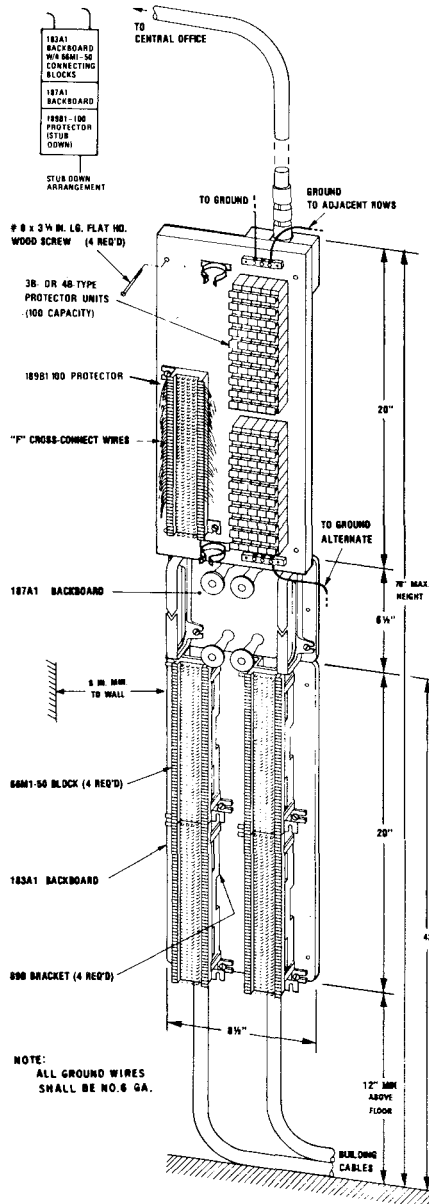


Fig. 15—100-Pair Entrance Cable—200-Pair Building Cable

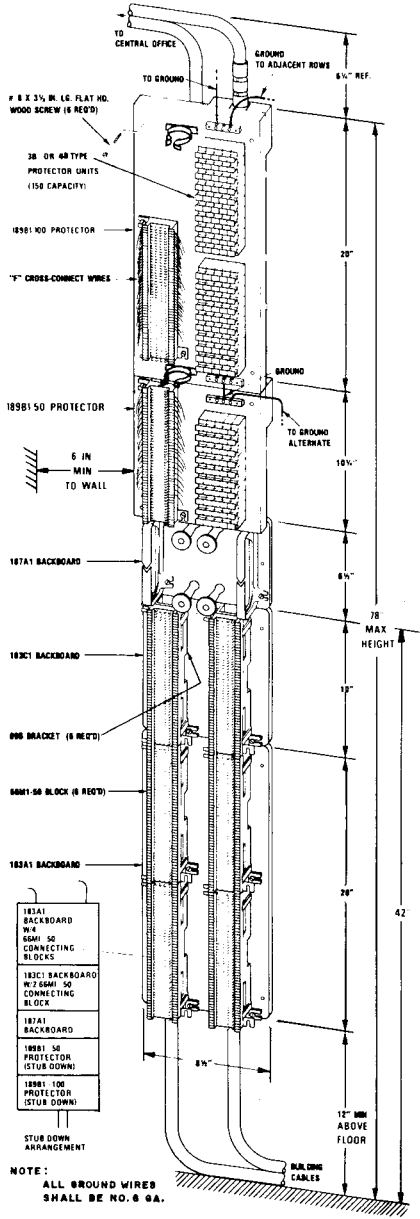


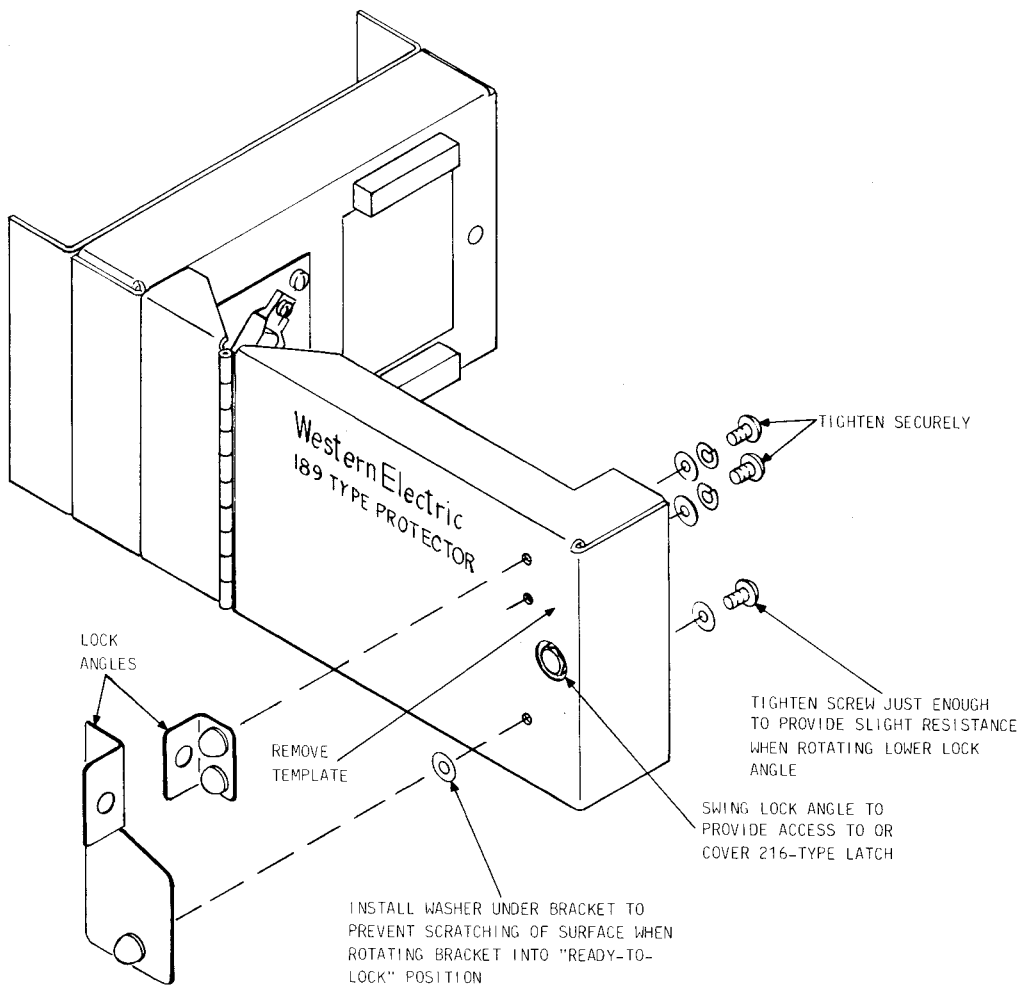
Fig. 16—150-Pair Entrance Cable—300-Pair Building Cable

**4. INSTALLING PADLOCK ADAPTER KIT**

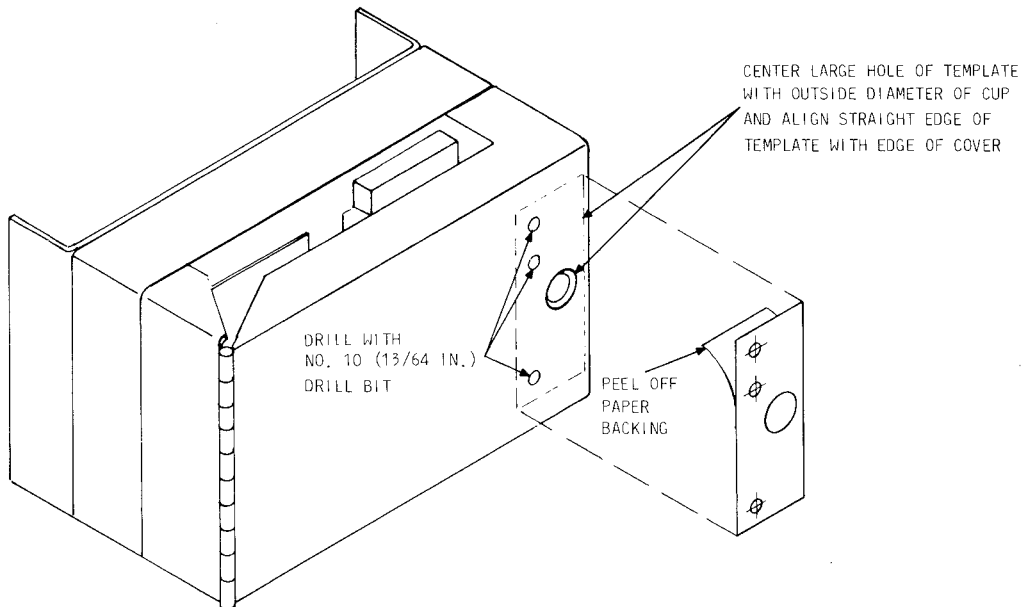
**4.01** A padlock adapter kit is available where additional security is required on covered versions of the 189-type protectors. The kit consists of a

mounting template, upper and lower lock angles, mounting hardware, and an instruction sheet.

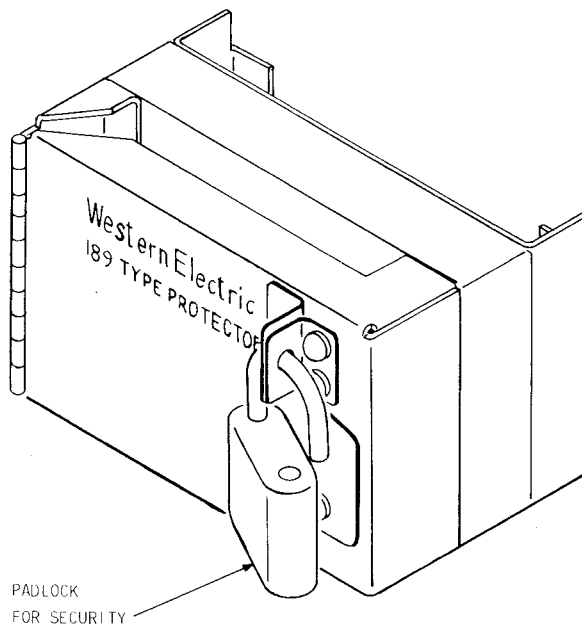
**4.02** Install the padlock adapter kit as shown in Fig. 17, 18, and 19.



**Fig. 17—Placing Template on Cover**



**Fig. 18—Installing Lock Angles for Padlock**



**Fig. 19—Padlock Installed**