

## 189-TYPE PROTECTORS DESCRIPTION AND INSTALLATION

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### 1. GENERAL

1.01 This section covers the description and installation of the 189-type building entrance protectors used as station protectors in buildings served by exposed cable.

1.02 When this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 For additional information on 66-type hardware, refer to the following sections of the Bell System Practices:

- 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 protector (Fig. 1) is a combination protector and terminating field intended for use with the 66-type quick-connect hardware. It provides electrical protection at building entrance terminals for 50 and 100 exposed feeder cable pairs by using the 3B protector unit. A full complement of 3B1A protector units is furnished with the modular protector. The 3B3A protector unit (red housing) should be used to designate those circuits requiring Special Service Protection (SSP).

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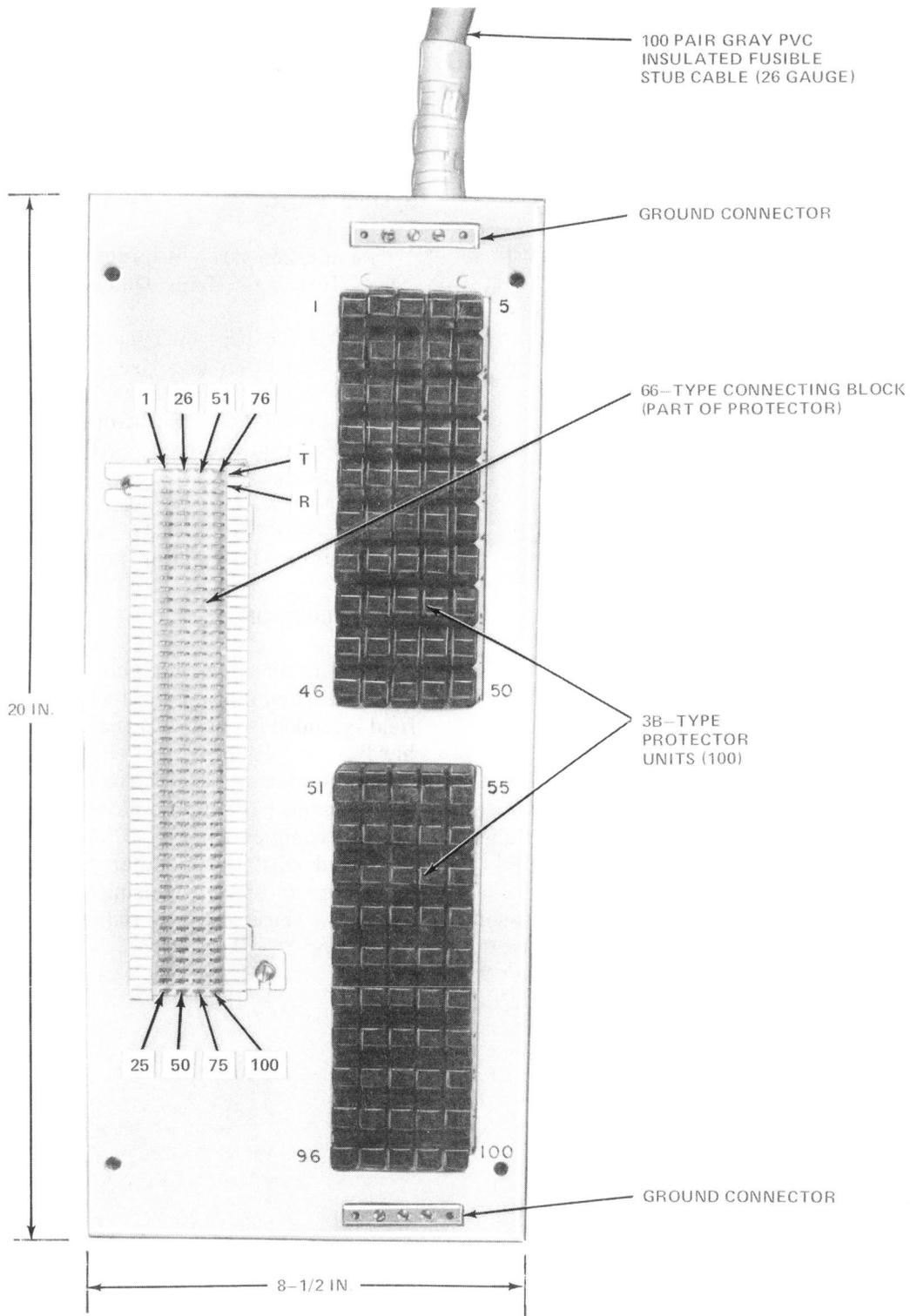


Fig. 1—189-Type Modular Protector

2.02 The left side portion of the modular protector is similar to the 66-type connecting blocks and is factory wired to the protectors. Figure 2 shows a wiring diagram for the 189-type protector.

2.03 The protector is equipped with a 26-gauge PVC insulated stub cable. This stub cable provides the fuse cable requirement for building entrance cable.

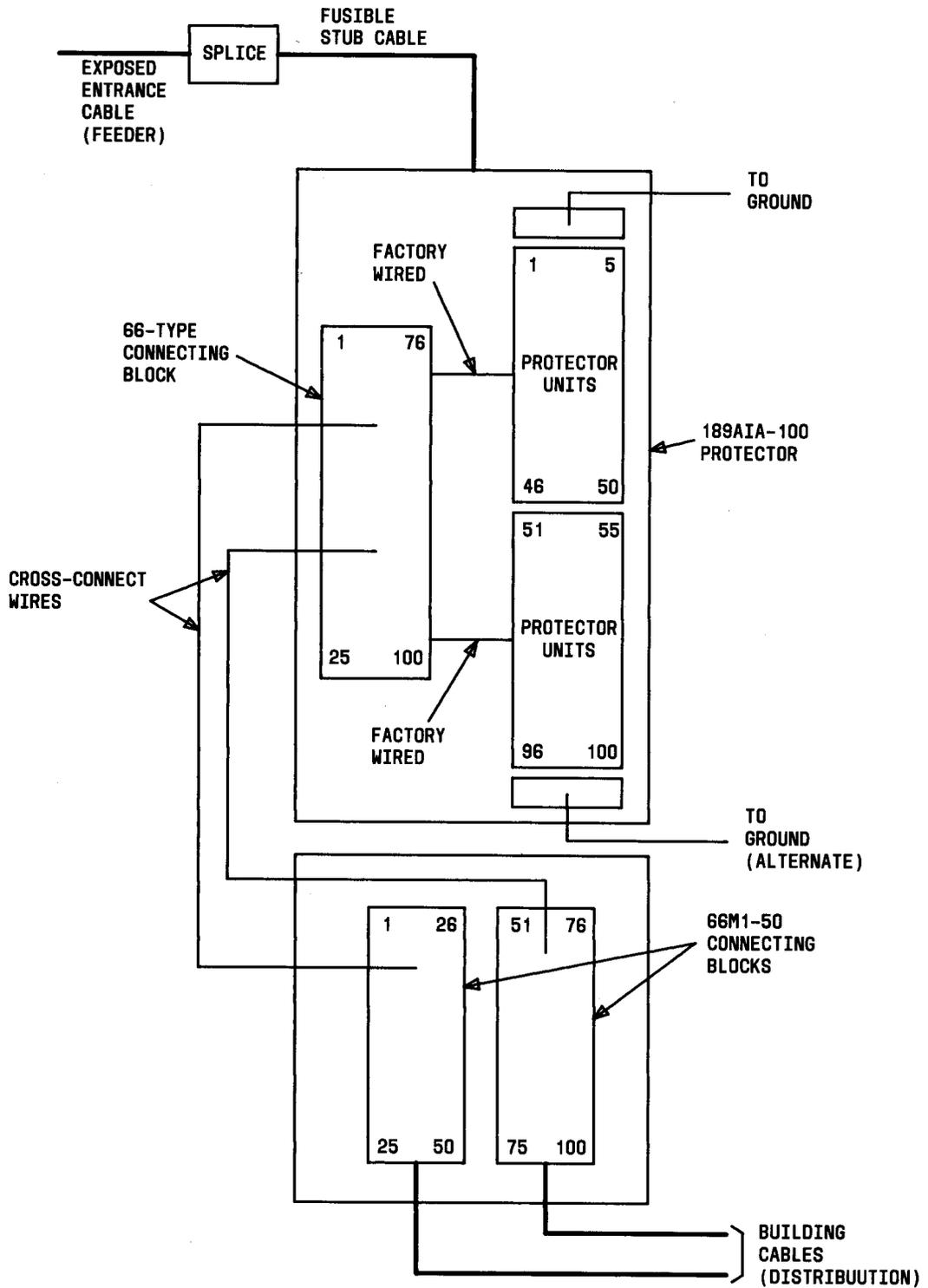


Fig. 2—Wiring Diagram for 189-Type Protector

**SECTION 631-460-114**

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

**2.05** These modular protectors are available in 50- and 100-pair sizes. Specifications are listed in Table A.

**3. INSTALLATION**

**3.01** The 189-type protector and 66-type quick-connect hardware may be mounted in cabinets. (See Section 631-400-101). The terminating apparatus may also 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).

**A. Locating Terminals**

**3.02** Locate the terminal in accordance with the detail plans. If the specified location does not seem feasible from an installation standpoint or is considered questionable from a maintenance standpoint, it should be referred to the engineer for review.

**3.03** Locate terminal:

- (a) Inside a building as near as practical to the cable entrance into the building.

- (b) To avoid flammable material and also where it will not be 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) To avoid 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) To ensure adequate space is provided above and below for cables and/or splices.

**TABLE A**

**189-TYPE PROTECTOR SPECIFICATIONS**

PROTECTOR CODE	NO. OF 3B PROTECTOR UNITS	DIMENSIONS (IN.)			STUB CABLE		
		LENGTH	WIDTH	DEPTH	GAUGE (Note 1)	PAIRS	LENGTH (FT)
189A1A-100	100 (3B1A)	20	8.5	4.5	26	100	15 or 25
189A1A-50	50 (3B1A)	10.25	8.5	4.5	26	50	15 or 25

*Note 1:* Splice 26-gauge stub cable to exposed entrance cable.

**B. Mounting 189-Type Protector and 66-Type Hardware Where Mechanical Protection Is Required**

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

**3.05** Install 82-type backboards as required in the H-type cable terminal sections.

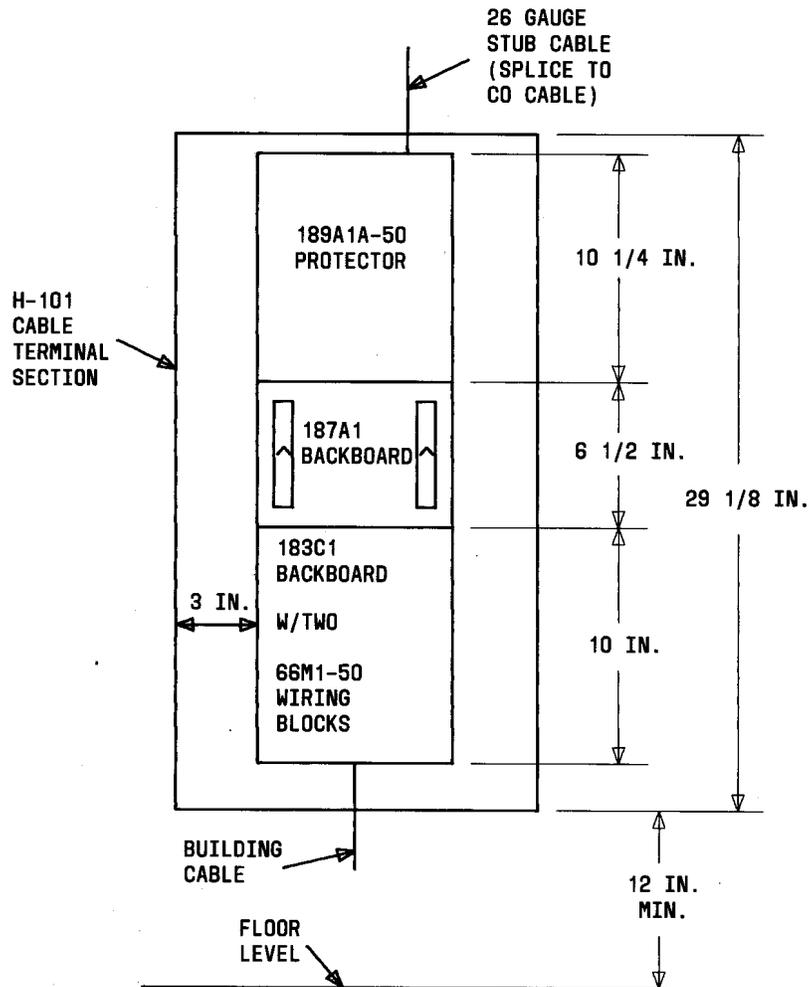
**3.06** Install the 189-type protector(s), 187-type backboard, and 183-type backboard (equipped with four 89B brackets), as shown in Fig. 3 and 4. Screws for installing 189-type protector are furnished with the protector. The 187-type backboard shall be placed between the 189-type protector and the 66-type connecting blocks in each vertical column.

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

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

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

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



**Fig. 3—50-Pair Entrance Cable—100-Pair Building Cable—Mechanical Protection Required**

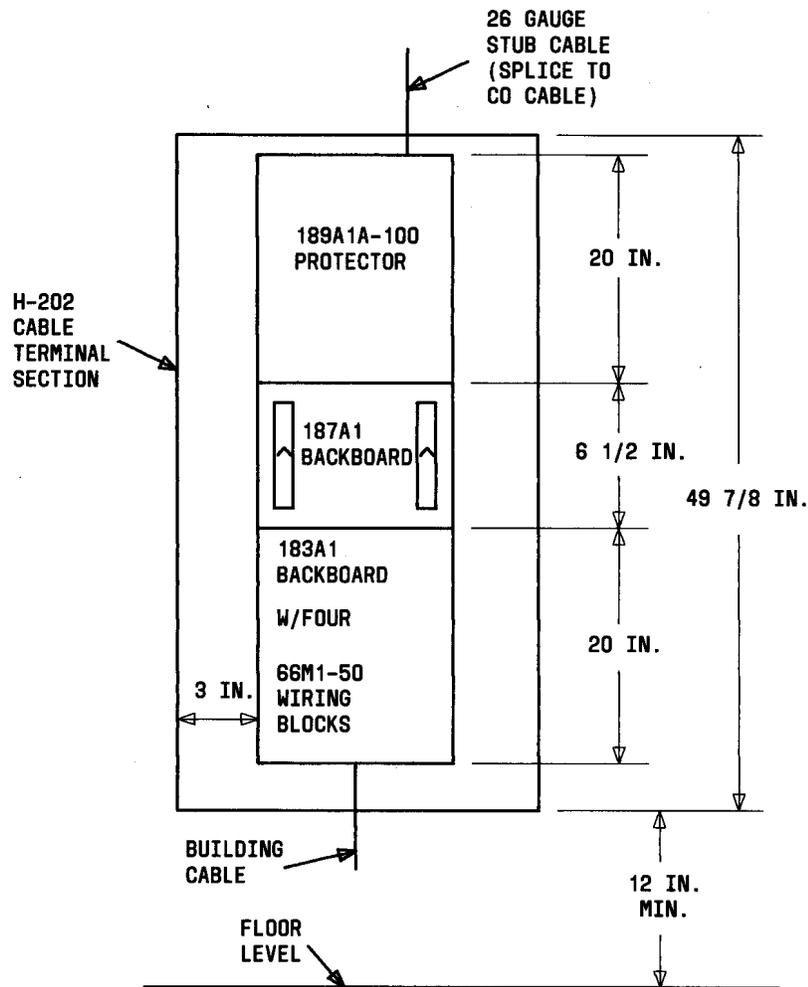


Fig. 4—100-Pair Entrance Cable—200-Pair Building Cable—Mechanical Protection Required

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

3.11 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 containing **400 pairs or less**, a **metallic 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. A **plastic closure may be used when the exposed cable is larger than 400 pairs**.

**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 case prior to appearance of exposed pairs in any terminal or cabinet. It should never be fanned out and terminated directly on protector and/or connectors within buildings.

3.12 The exposed entrance cable must be grounded within fifty feet of the building entrance to provide adequate protection of the customer's building against fire. The method of providing this grounding

is outlined in Section 633-560-101. Run a No. 6 ground wire from the ground connector on the 189-type protector to protector ground. See Section 460-100-201 for selection of proper ground.

**C. Mounting 189-Type Protector and 66-Type Hardware Where Mechanical Protection Is *Not* Required**

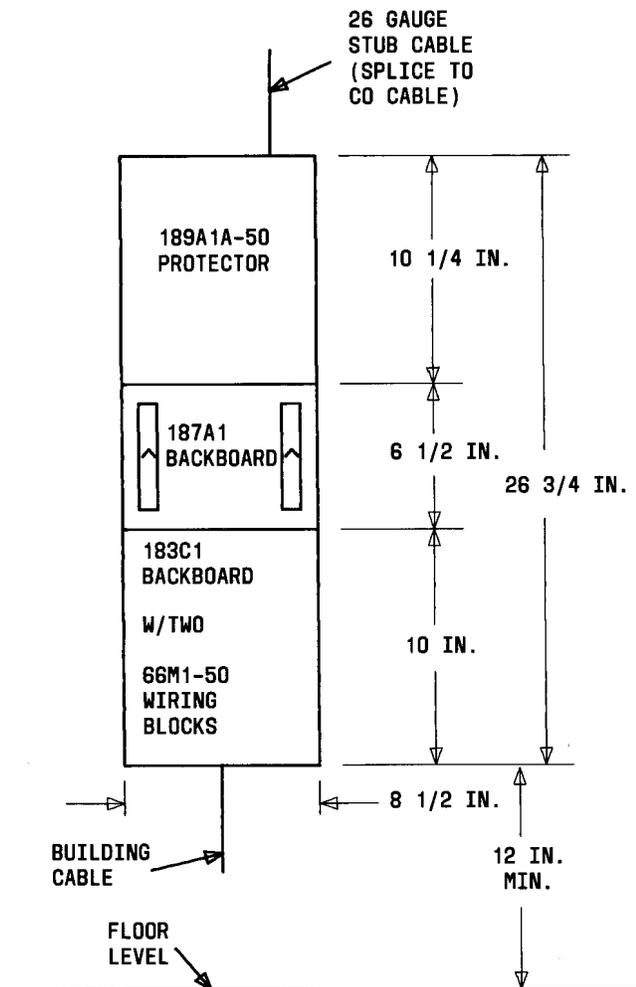
**3.13** Starting at the left-hand side of the selected area, mount the 189-type protector(s) to this surface.

**3.14** Mount the 187A1 backboard, 183-type backboard, and 66M1-50 connecting blocks as shown in Fig. 5, 6, and 7.

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

**3.16** 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.

**3.17** Splice the 26-gauge stub cable(s) to the exposed CO feeder cable as outlined in paragraph 3.11.



**Fig. 5—50-Pair Entrance Cable—100-Pair Building Cable—Mechanical Protection Not Required**

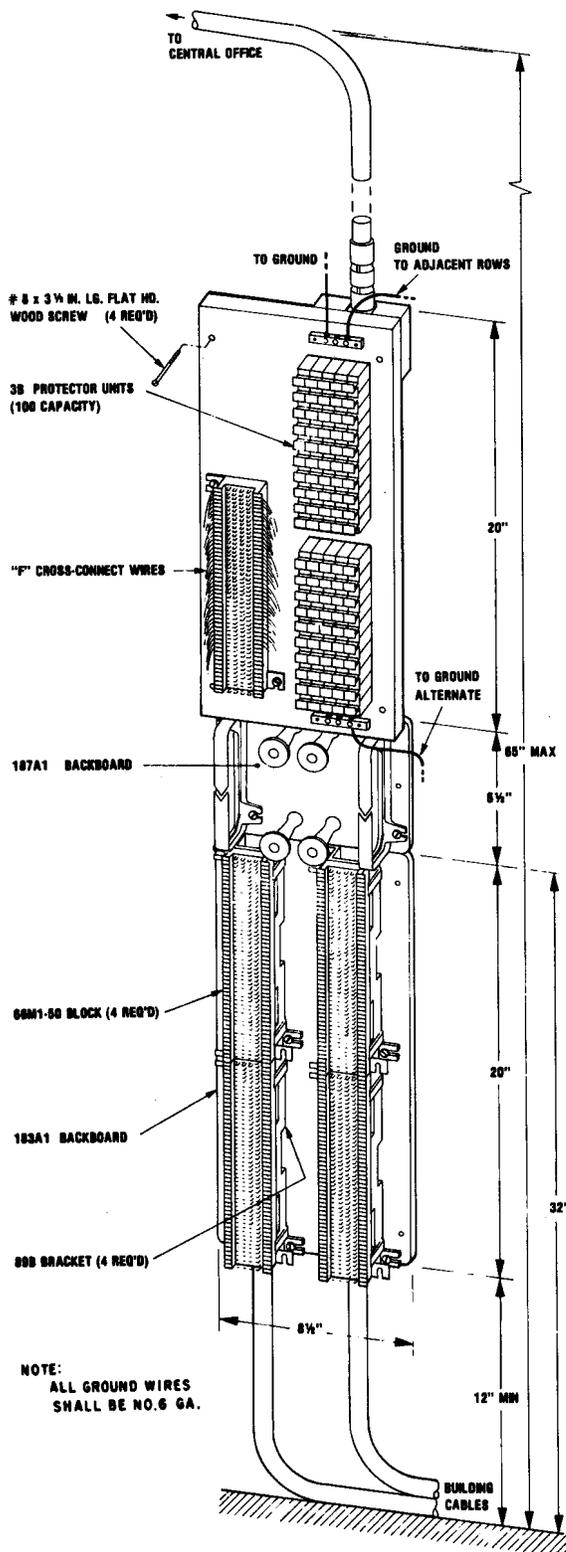


Fig. 6—100-Pair Entrance Cable—200-Pair Building Cable—Mechanical Protection Not Required

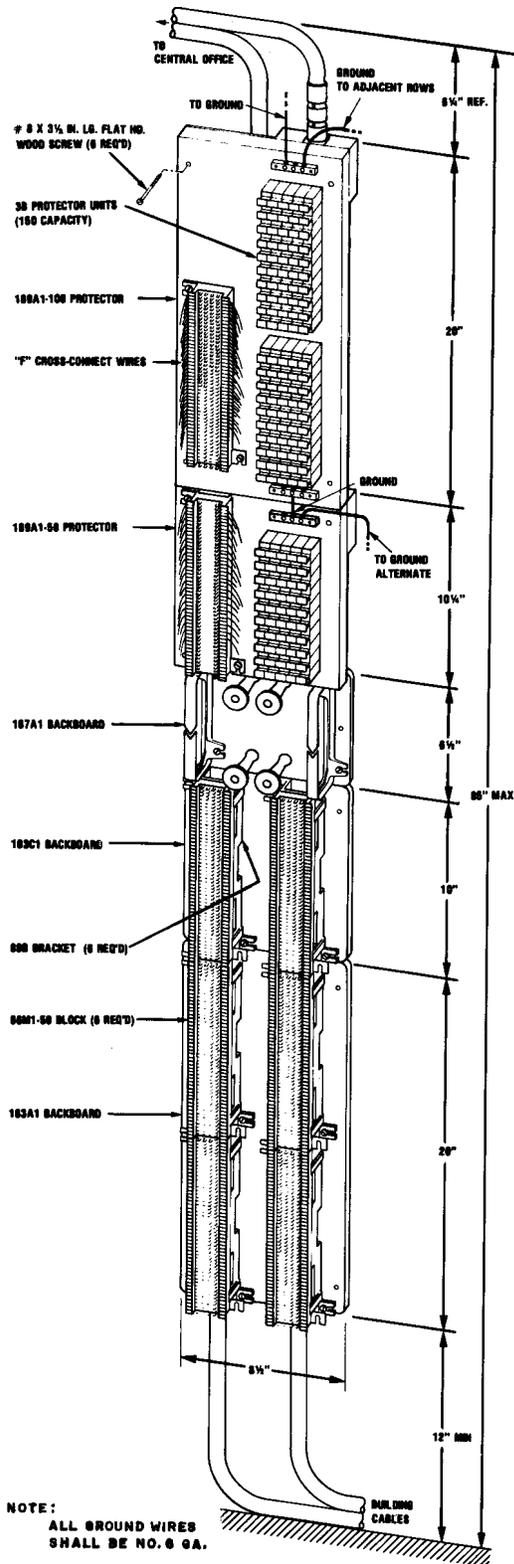


Fig. 7—150-Pair Entrance Cable—300-Pair Building Cable—Mechanical Protection Not Required