

## BUILDING TERMINALS—MAIN TERMINALS USING 66-TYPE QUICK-CONNECT HARDWARE

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### 1. GENERAL

1.01 This section covers the installation of equipment for construction of main terminals served by *exposed* and *unexposed* cables entering buildings.

1.02 This section is reissued to:

- Include use of B cable terminal frame, AT-8640
- Show new design of H-type cable terminal sections (see Section 631-400-101 for details)
- Include use of D bond clamp
- Include information on 3/4-inch particleboard backboards
- Delete information on AT-8519B and AT-8519C cable terminal sections
- Delete information on B bond clamps.

Since this is a general revision arrows ordinarily used to indicate changes have been omitted.

1.03 These terminals are designed for installation between central office cable and building cables to provide cross-connecting points. These terminals can be built to serve any combination or ratio of entrance cable pairs to building cable pairs.

1.04 When a separate room is provided by the customer for large installations of telephone equipment, such a CENTREX equipment, frames, and various special service gear, this area is considered the same as a central office. The equipment engineer will ordinarily provide frames for the termination of outside plant cables in these frame rooms. The standard central office type of terminating apparatus should be used at these locations.

1.05 The objectives of the construction methods outlined in this section are as follows:

- (a) To provide a standard method for construction of terminals so that cables, protectors, connecting blocks, and cabinets will be installed in a consistent manner.
- (b) To provide a standard method of running cross-connecting wires between building cables and entrance cables, regardless of whether or not the building is served by exposed or unexposed cable.
- (c) To permanently tie down all cable pairs entering or leaving any terminal to promote good housekeeping which will:
  - (1) Facilitate work at the terminal.
  - (2) Reduce maintenance expense.

### NOTICE

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**1.06** Because of potential fire hazards, waterproof cable must *not* be terminated inside buildings or fanned out and the conductors terminated on 66-type connecting blocks.

**2. EQUIPMENT**

**2.01** The following equipment must be ordered as required to construct terminals:

(a) **5A-type terminal block** (Fig. 1) is for use at installations where the number of entrance cable pairs brought into the building is 600 or more. This block is available in 600- and 900-pair sizes and is equipped with quick-clip connectors, and has a 26-gauge PVC stub cable for splicing to the entrance or riser cables. The 5A-type terminal block is described in Section 631-050-110.

(b) **66M1-50 connecting block** (Fig. 2) consists of 50 horizontal rows of quick clip connectors inserted in a fire retardant, molded plastic block and held in place by a plastic retaining plate. Each horizontal row contains two double quick clip connectors (Refer to Section 631-050-108).

(c) The **89B bracket** (Fig. 3) is used for mounting the 66M1-50 connecting block. The bracket is molded of a fire retardant plastic and holds the connecting block by means of four snap-on-latches.

(d) **The 183-type backboards** are factory-equipped with four 89B brackets and are shown in Fig. 4 and 5.

(e) **H-type cable terminal sections** described in Section 631-400-101 are used to enclose terminals at locations where mechanical protection is required.

(f) **2A ground strip** consists of a plate equipped with two binding posts and washers. The plate has a "U" shaped slot to receive the mounting screw and a depressed tab which serves to prevent turning after installation.

(g) **D bond clamp** is a two-piece design which consists of an inner plate with integral stud, outer plate, and nut. Only one size D bond clamp is available for all cable sizes. See Section 081-852-118.

(h) **82-type backboards** are 3/4-inch plywood backboards for use in the H-type cable terminal sections to provide a mounting for 183-type backboards or other equipment, as follows:

<b>BACKBOARD CODE</b>	<b>CABLE TERMINAL SECTION</b>
82E	H102
82F	H202
82G	H303

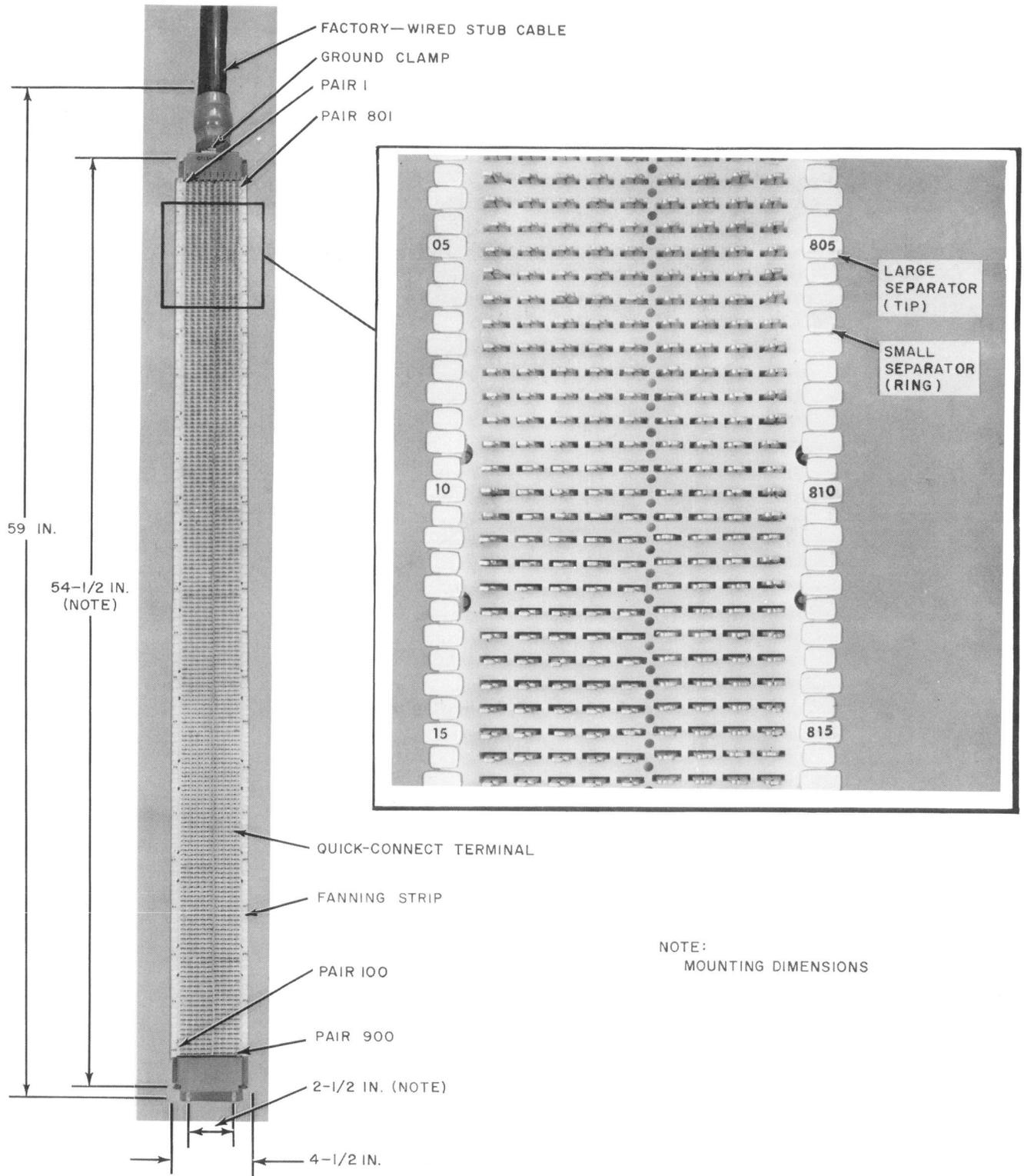


Fig. 1—5A Type Terminal

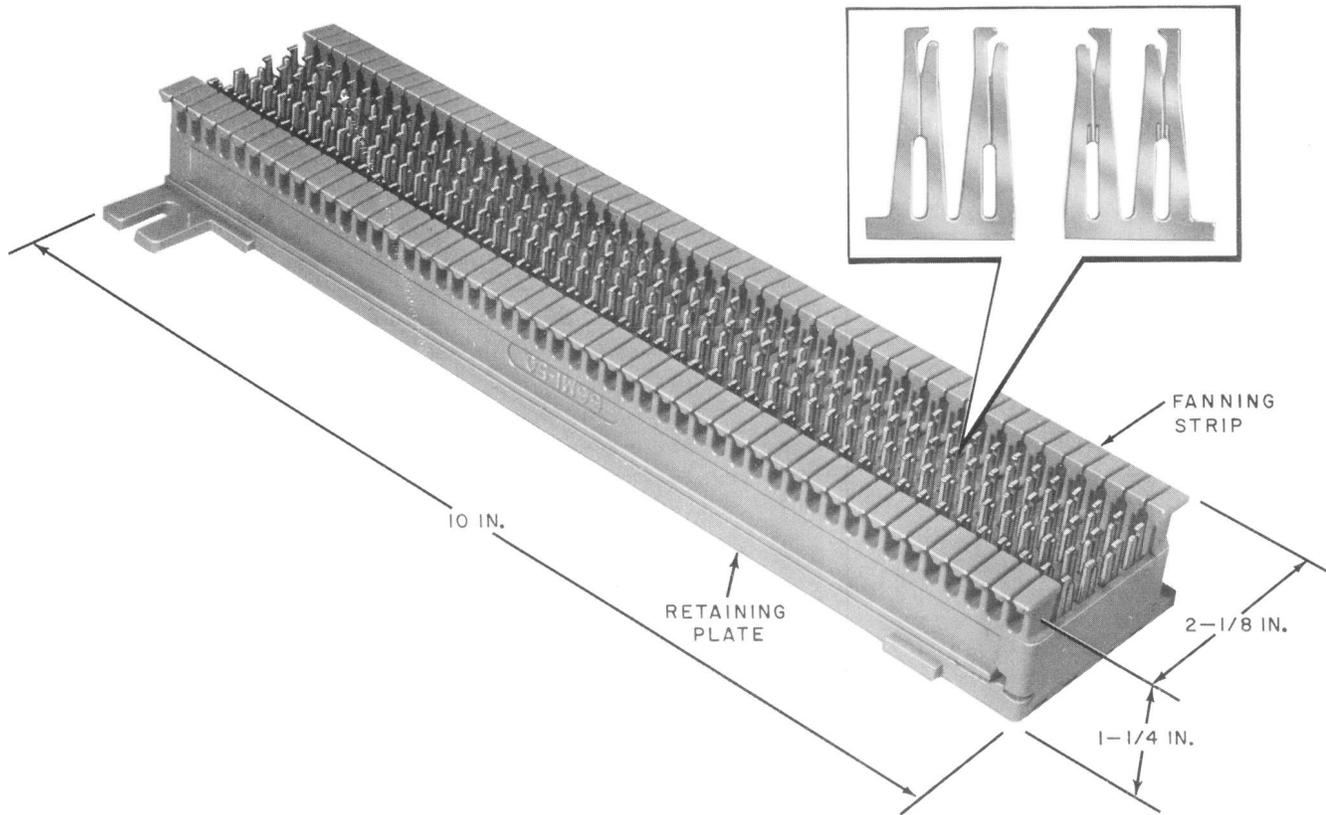


Fig. 2—66M1-50 Connecting Block

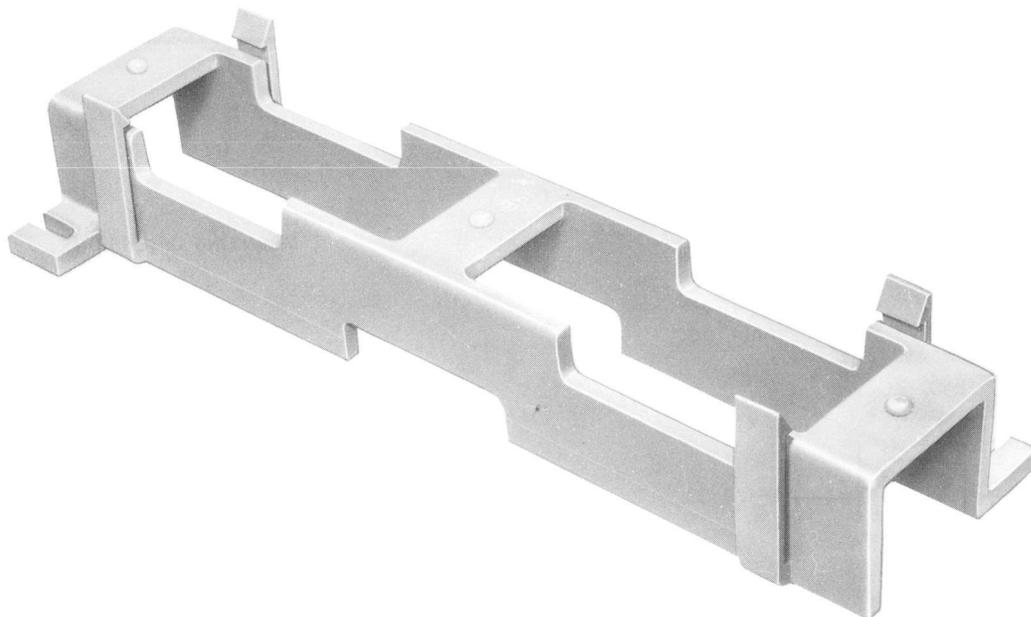


Fig. 3—89B Bracket

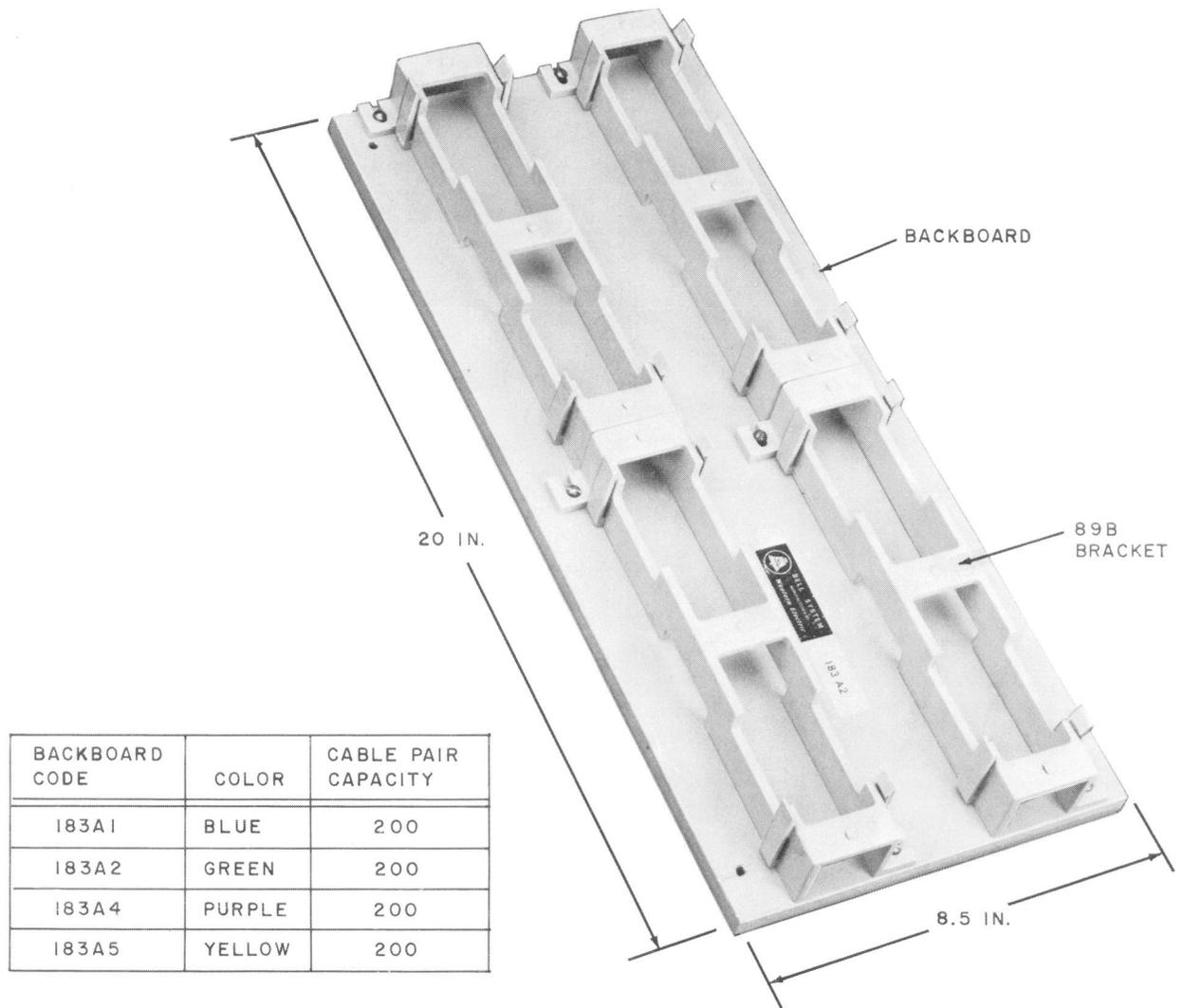


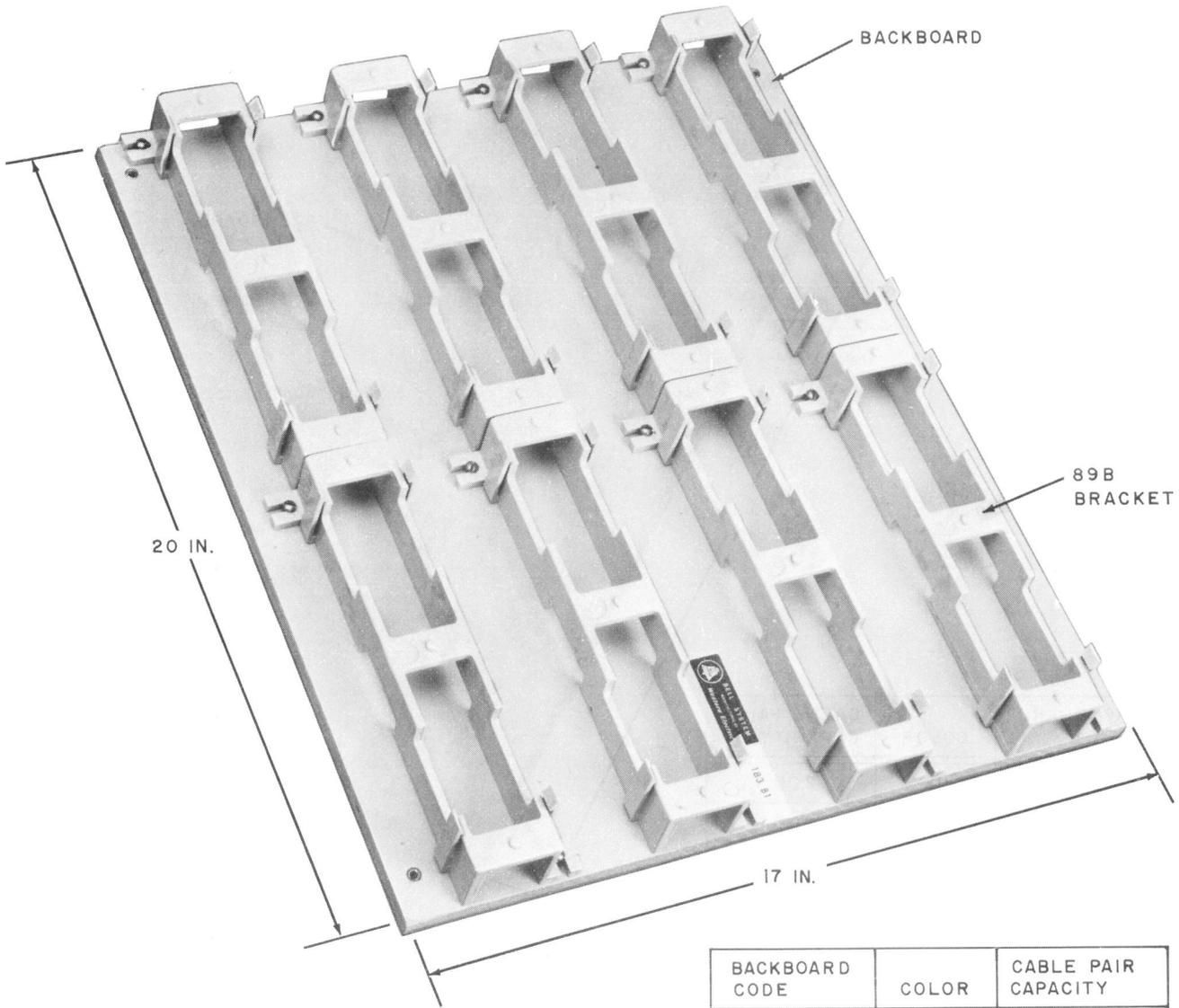
Fig. 4—183A2 Backboard

**2.02** The following equipment must be ordered as required to construct terminals served by exposed cable.

(a) **134A1A-type protector** (Fig. 6) is used in conjunction with the 5A-type terminal block or 66-type connecting block for constructing terminals in buildings served by exposed cables. The 500-volt station protector is available in 16-,

25-, 50-, and 100-pair sizes and is equipped with both a 24- and a 26-gauge stub cable. The 134A1A-type protector is described in Section 631-460-111.

(b) **B cable terminal frame AT-8640** described in Section 631-400-105 is used for mounting 5A-type terminal blocks, 134-type protectors, and 183-type backboards.



BACKBOARD CODE	COLOR	CABLE PAIR CAPACITY
183 B1	BLUE	400
183 B2	GREEN	400
183 B3	RED	400
183 B4	PURPLE	400
183 B5	YELLOW	400

Fig. 5—183B1 Backboard

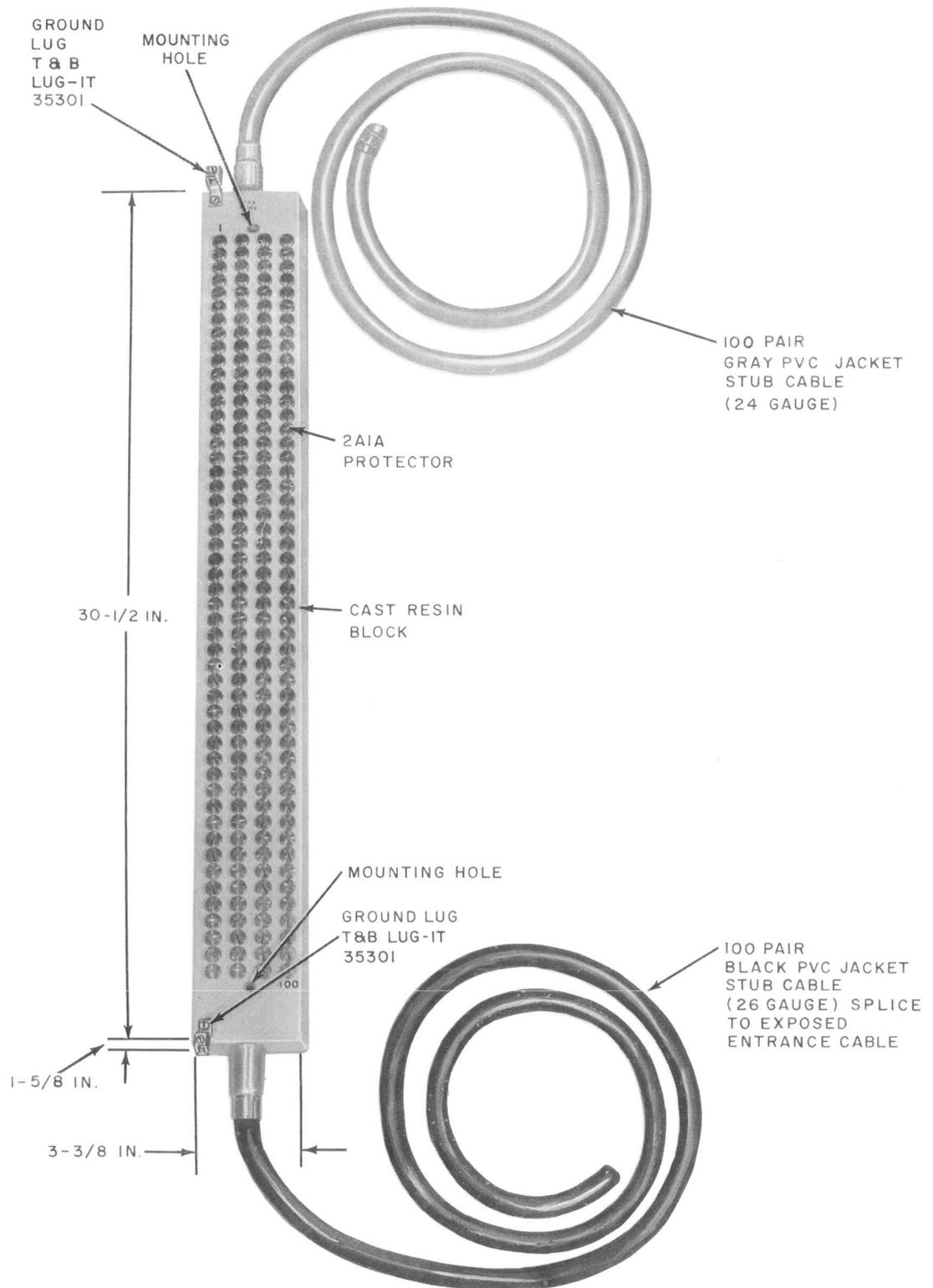


Fig. 6—134A1A-Type Protector

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### 3. LOCATING TERMINALS

**3.01** Locate the terminal in accordance with the detail plans, complying with the following points insofar as practical. If the specified terminal 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.

**3.02** 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 in the terminal 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.

#### 4. INSTALLATION OF TERMINALS SERVED BY EXPOSED CABLES

**4.01** When a building terminal is served by *exposed* cables, it will be necessary to install protection between the exposed entrance cable and the station. This protection is provided by the use of 134-type protectors described in Section 631-460-111. No fuse cable is necessary as the 134-type protector has a 26-gauge stub which serves as a fuse.

**4.02** These protectors are used in conjunction with the 66M1-50 connecting block when the feeder cable contains up to 400 pair, and a 5A-type terminal block when the feeder cable contains 600 pair or more.

**4.03** The terminating apparatus outlined in 4.01 or 4.02 can be mounted as follows:

(a) In either a cabinet furnished by the building owner or cabinets furnished by the telephone company. The size of these cabinets will be determined by the dimensions of the terminating apparatus plus space for running cross-connecting wires.

(b) In a room or closet provided exclusively for telephone equipment, it is not necessary to furnish housings for this equipment, however, a 3/4-inch plywood backboard is desirable and should be of sufficient size to allow room for the terminating apparatus plus space for running cross-connecting wires, cables, and splices.

**Note:** Sheets of 3/4-inch thick plywood or particleboard may be used as backboard material for mounting terminating hardware. Plywood (interior AD grade) or particleboard (industrial grade, medium density —37 lbs/cubic foot to 50 lbs/cubic foot—with high screw holding power of 225 pounds minimum) is suitable. Particleboard used for floor underlayment is not suitable as density and screw holding power is too low.

#### Mounting 134-Type Protector and Colored Backboards Equipped with 66M1-50 Connecting Blocks in H-Type Cable Terminal Section

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

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

**4.06** Install the 134-type protector and colored backboards equipped with 66M1-50 connecting blocks as shown in Fig. 7, 8, 9, 10, or 11. Normally the green backboard designates feeder cable terminations and the *blue* backboard designates building cable terminations; however, in a small terminal (50 pair or less) such as those illustrated in Fig. 7 and 8 both the entrance cable and building cable are terminated on 66M1-50 connecting blocks mounted on a *green* backboard. Then it is necessary to use designation strips placed on the connecting blocks to identify the entrance cable and building cable, respectively.

**4.07** Install a 2A ground strip at a convenient location at the bottom metallic surface of the cable terminal section (See Fig. 7, 8, 9, 10, and 11).

**4.08** Remove the gray PVC jacket from the 24-gauge stub cable of the 134-type protector. Feed the binder groups behind the 89B brackets on the green backboard. Equip the green backboard with 66M1-50 connecting blocks, then using a 714B tool terminate the stub cable in color code sequence on the connecting block adjacent to the protector as outlined in Section 631-050-108 and as shown in Fig. 7, 8, 9, 10, and 11.

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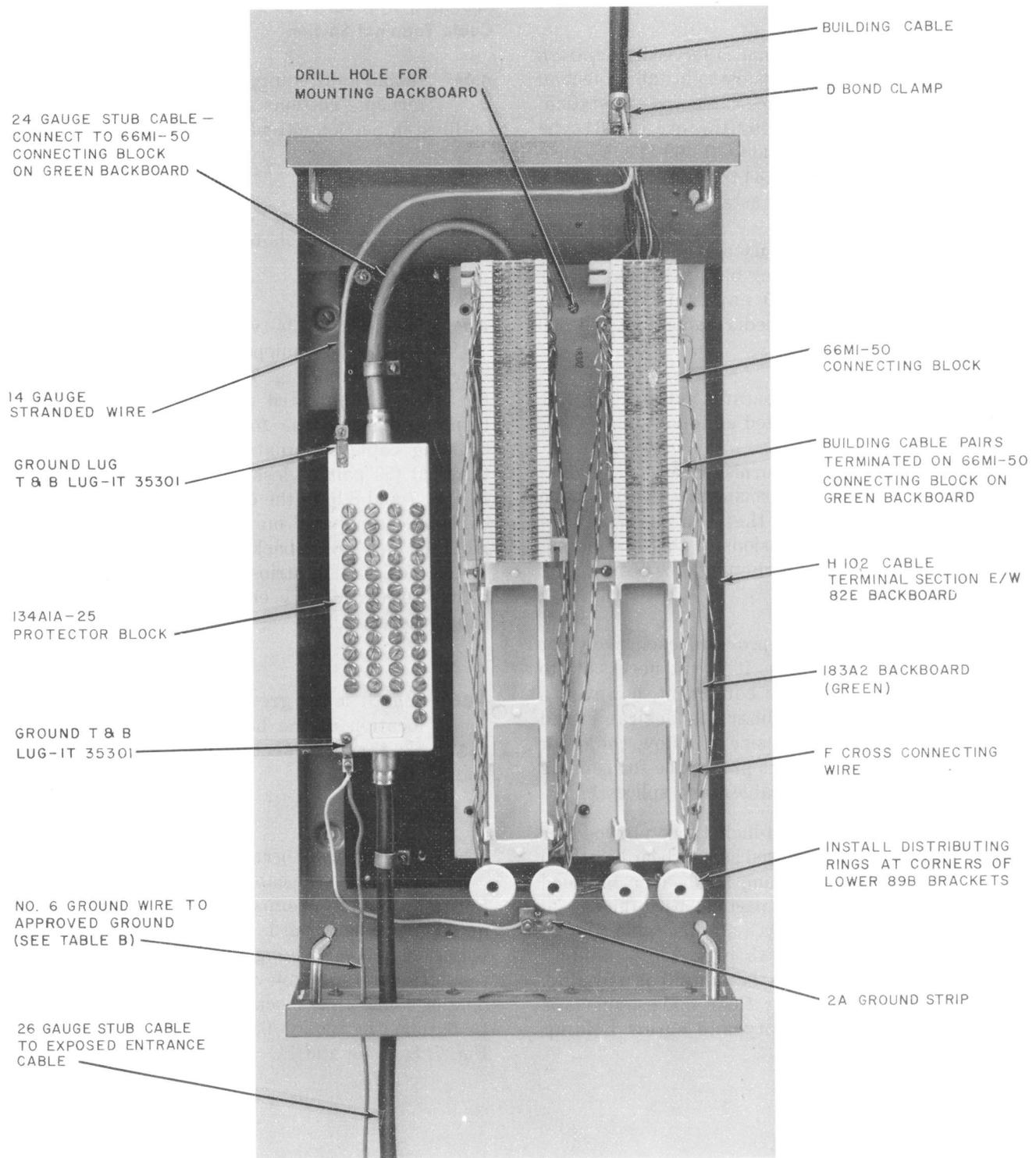


Fig. 7—16 or 25 Pair Exposed Entrance Cable—50 Pair Building Cable

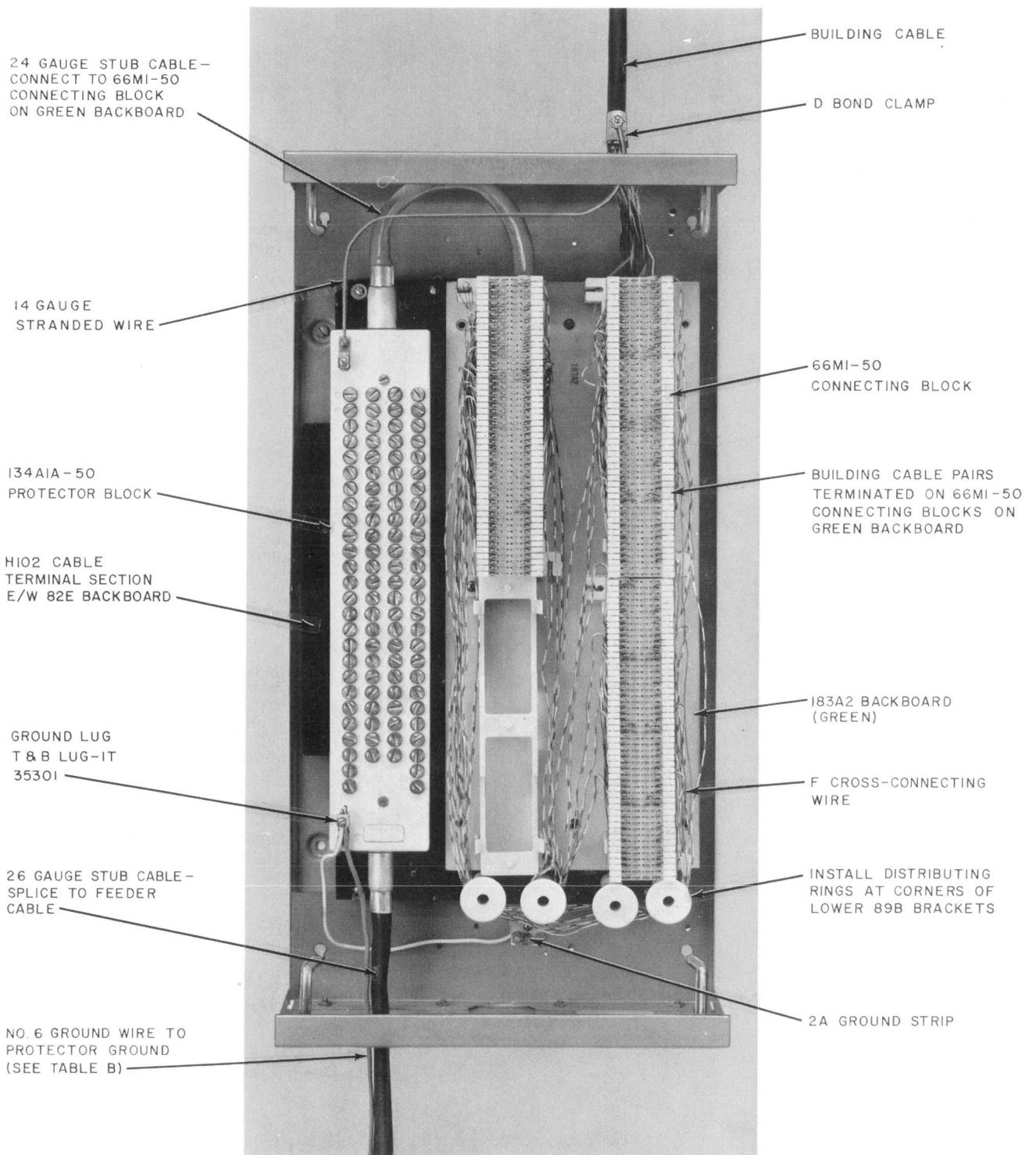


Fig. 8—50 Pair Exposed Entrance Cable—100 Pair Building Cable

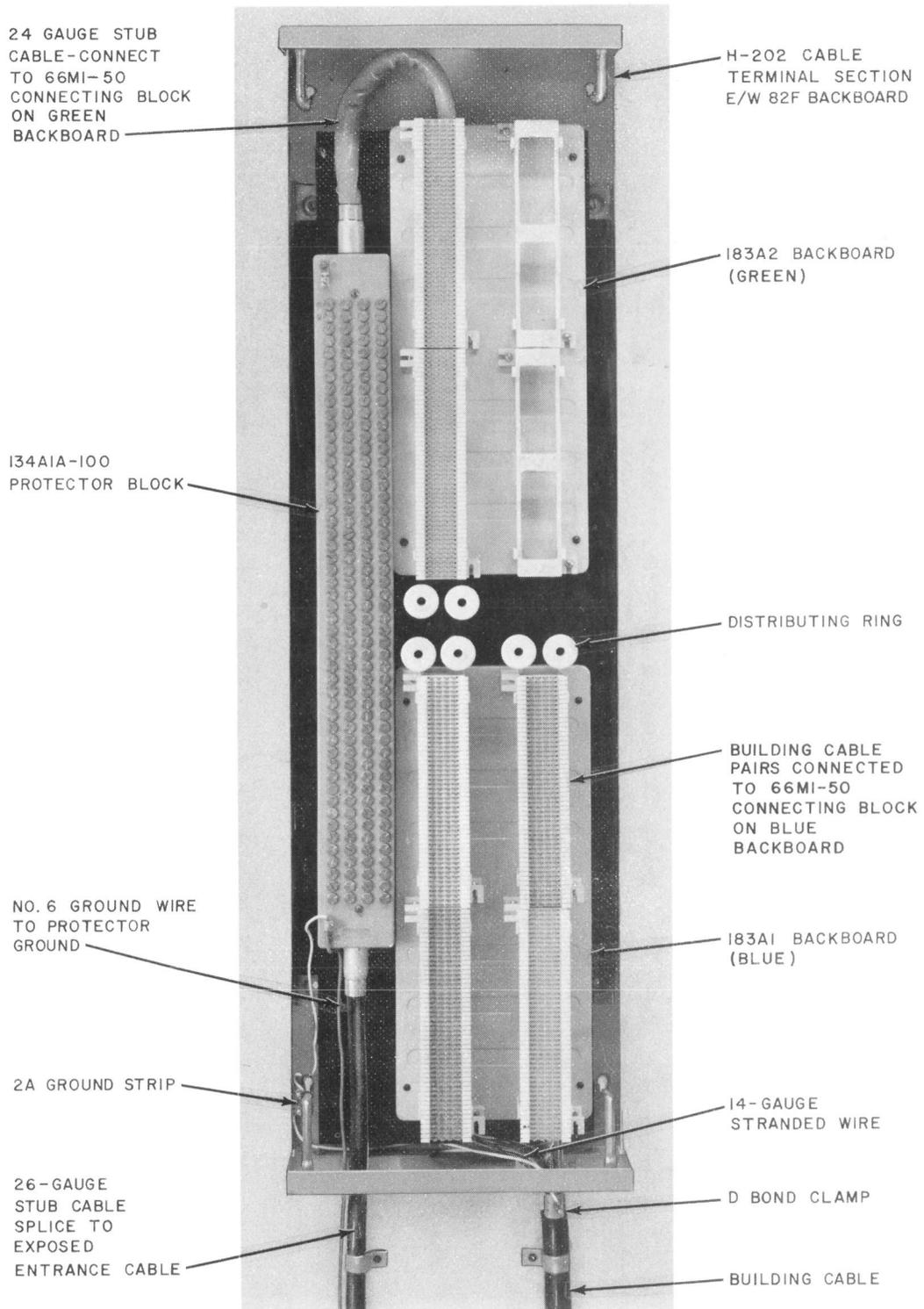


Fig. 9—100 Pair Exposed Entrance Cable—200 Pair Building Cable

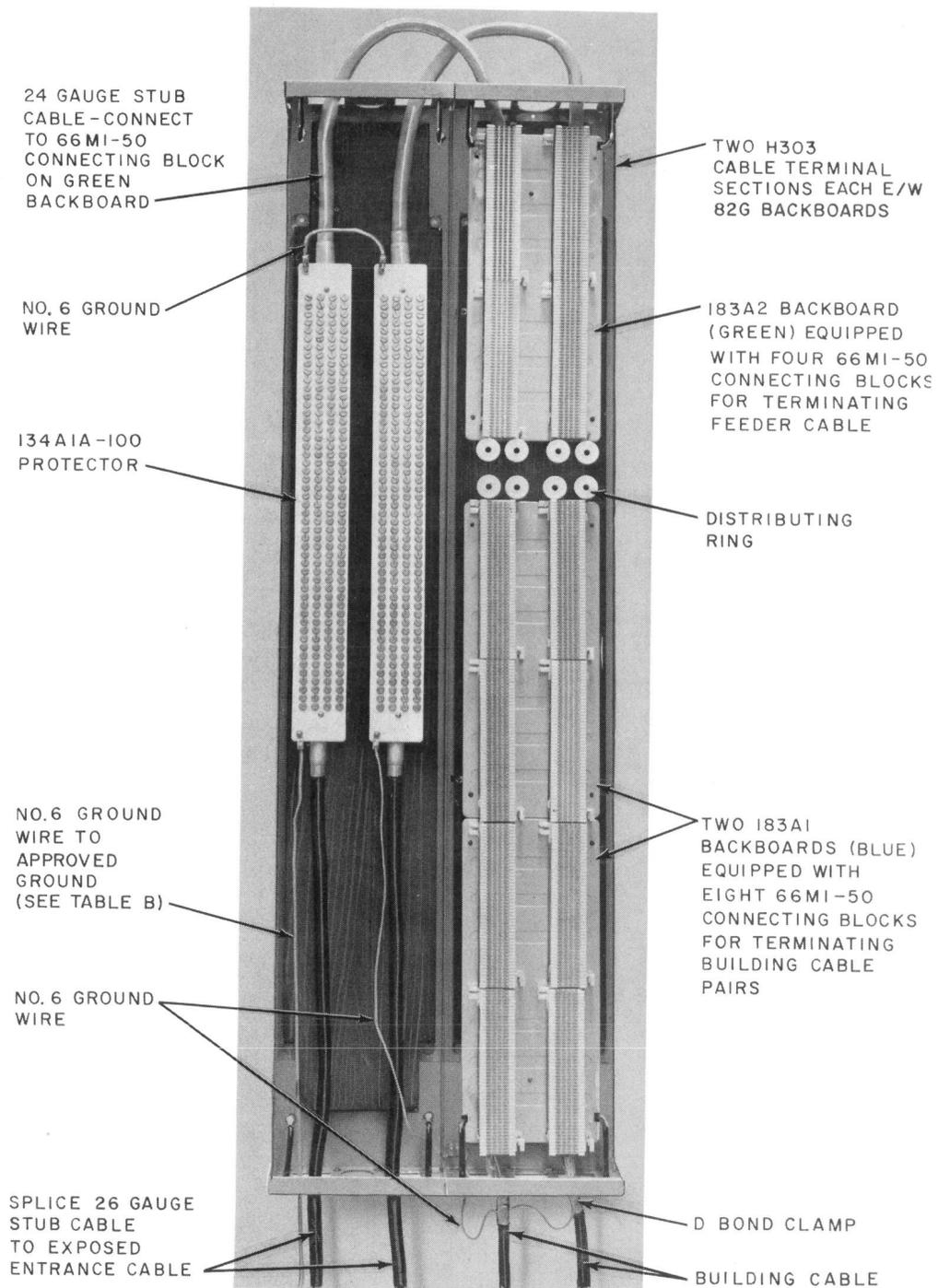


Fig. 10—200 Pair Exposed Entrance Cable—400 Pair Building Cable

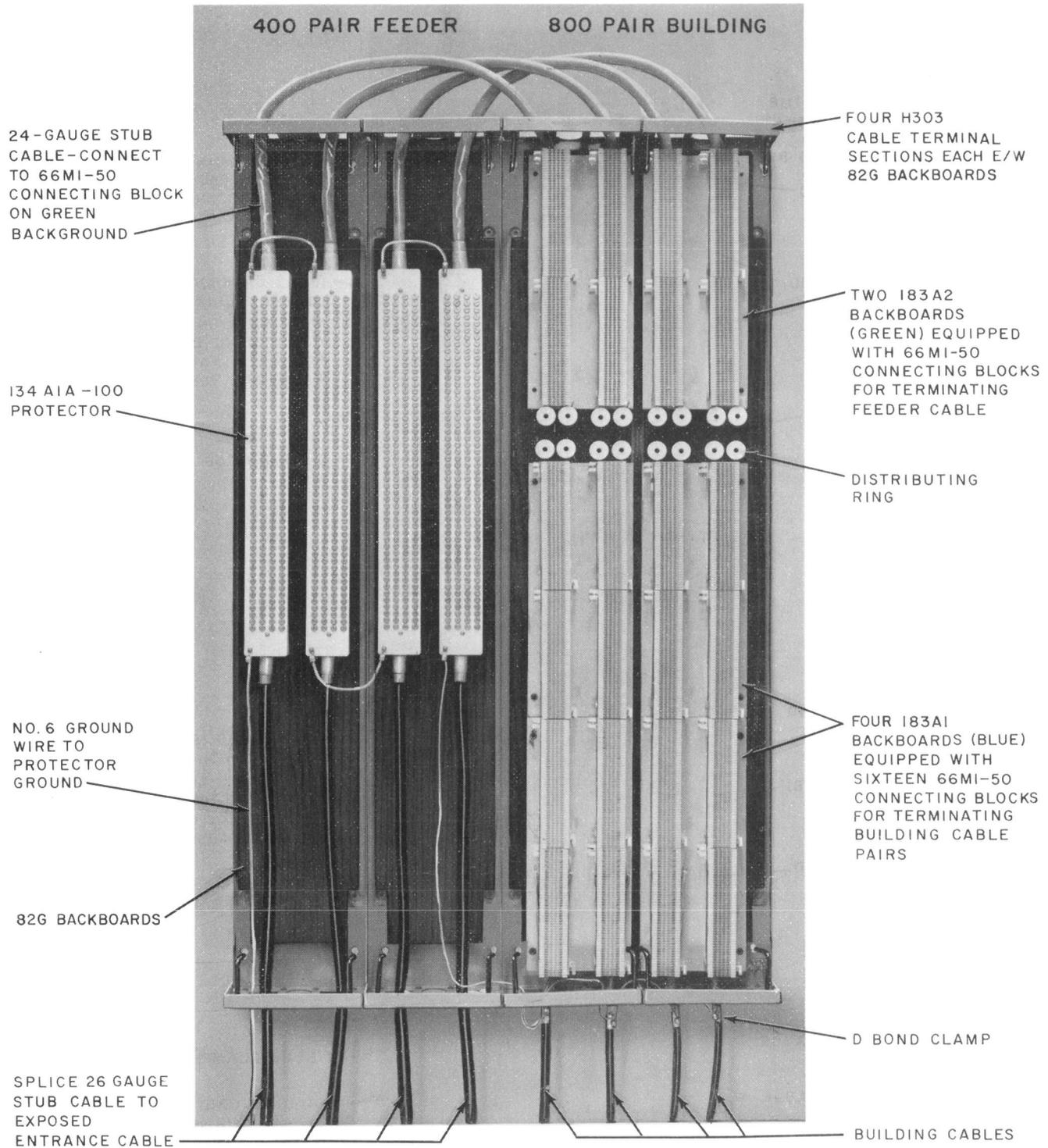
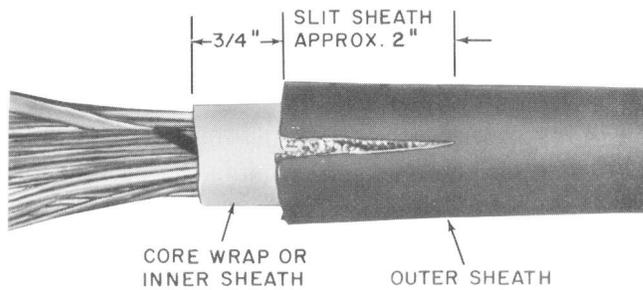
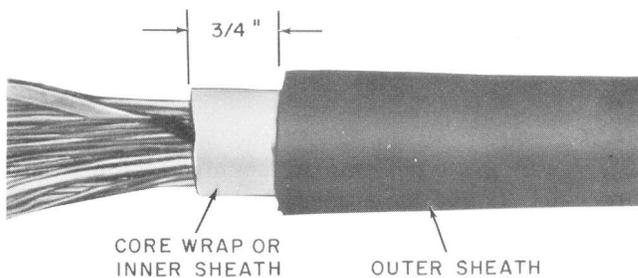


Fig. 11—400 Pair Exposed Entrance Cable—800 Pair Building Cable

- 4.09 Feed the building cables through the entrance holes into the cable terminal section and position alongside the connecting blocks. Cut the cable approximately 18 inches below the blocks.
- 4.10 Remove the required length of plastic jacket and underlying metallic shield from the end of the cable.
- 4.11 Install D bond clamp in accordance with Fig. 12 through 14.

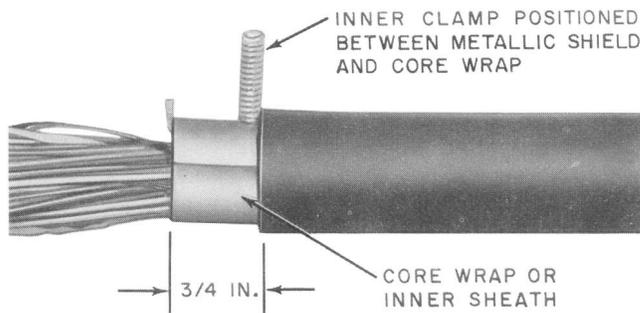


CABLE DIAMETER 0.8 IN. OR LESS  
(SHEATH SLITTING REQUIRED)

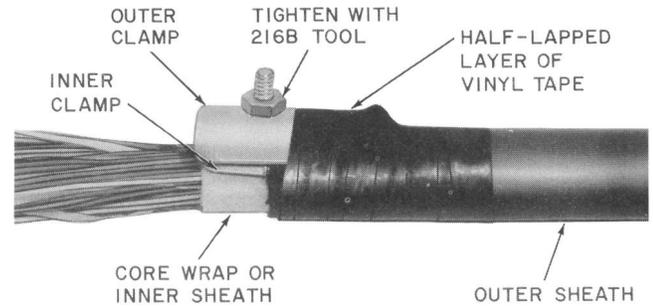


CABLE DIAMETER GREATER THAN 0.8 IN.  
(SHEATH SLITTING NOT REQUIRED)

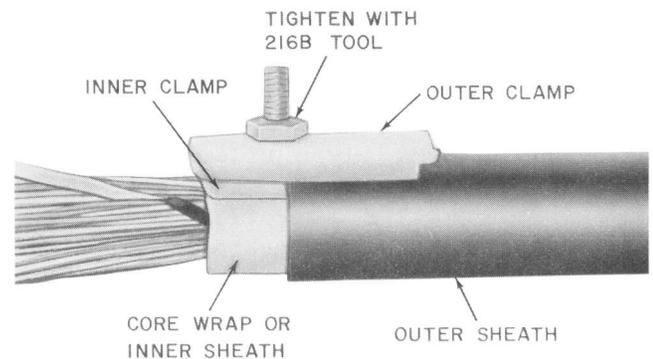
**Fig. 12—Cable Preparation for Installation of D Bond Clamp**



**Fig. 13—Inner Clamp Installed**



CABLE DIAMETER 0.8 IN OR LESS  
(WRAP WITH VINYL TAPE APPROX. 1/2 IN.  
PAST END OF SLIT)



CABLE DIAMETER GREATER THAN 0.8 IN.

**Fig. 14—Completed Installation of D Bond Clamp Tape**

- 4.12 Remove the core wrapper from the building cables and feed the binder groups into the channels behind the 89B brackets equipped with 66M1-50 connecting blocks.
- 4.13 Using a 714B tool, connect the cable pairs in color code sequence to the 66M1-50 connecting blocks as outlined in 631-050-108.
- 4.14 Splice the black 26-gauge stub cable from the 134-type protector to the exposed central office feeder cable. 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 protector to protector ground as shown in Fig. 7, 8, 9, 10, or 11. See Section 460-100-201 for selection

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of proper ground. Run a 14-gauge, standard, tinned conductor wire from the D bond clamps to the 2A terminal strip as shown in Fig. 7, 8, 9, 10, or 11.

**4.15** When the exposed entrance cable is 400-pair or less, metallic splice closures must be used. In the event of power contact, the metallic closure will contain the cable fusing and prevent a possible fire. (See Section 631-460-200.) A plastic splice case may be used to enclose splices containing 600 pair or larger cable.

### **Mounting 134-type Protector and Colored Backboards for Installation of 66M1-50 Connecting Blocks in a Room or Closet Provided Exclusively for Telephone Equipment**

**4.16** Starting at the left-hand side of the wall, mount the 134-type protector to the wall (Fig. 15).

**4.17** Mount one 183A2 backboard (green) and two 183A1 backboards (blue) on the wall as shown in Fig. 15.

**4.18** Prepare the 24-gauge gray PVC stub cable of the protector and route underneath the 89B brackets on the 183A2 backboard (green).

**4.19** Equip the green backboards with 66M1-50 connecting blocks, then using a 714B tool terminate the stub cable on the 66M1-50 connecting block in color code sequence.

**4.20** Prepare building cable sheath and install D bond clamp as outlined in 4.11.

**4.21** Remove the core wrapper from the building cable and feed the binder groups into the channel behind the 89B brackets equipped, with 66M1-50 connecting blocks, on the 183A1 backboard (blue).

**4.22** Using a 714B tool connect the cable pairs in color code sequence to the 66M1-50 connecting blocks as outlined in 631-050-108.

**4.23** Splice the 26-gauge stub cable to the entrance cable and ground as outlined in 4.14. Run a 14-gauge stranded, tinned conductor wire from the D bond clamp to a common ground as shown in Fig. 15. This strapping provides continuity between the building cables and entrance cables.

### **Mounting 134-type Protector, 5A-type Terminal, and 183-type Backboards on B Cable Terminal Frame and H303 Cable Terminal Section.**

**4.24** Figure 16 illustrates the 134-type protector and 5A-type terminal mounted on the B cable terminal frame at locations where no mechanical protection is required. Refer to Section 631-400-105 for other typical arrangements.

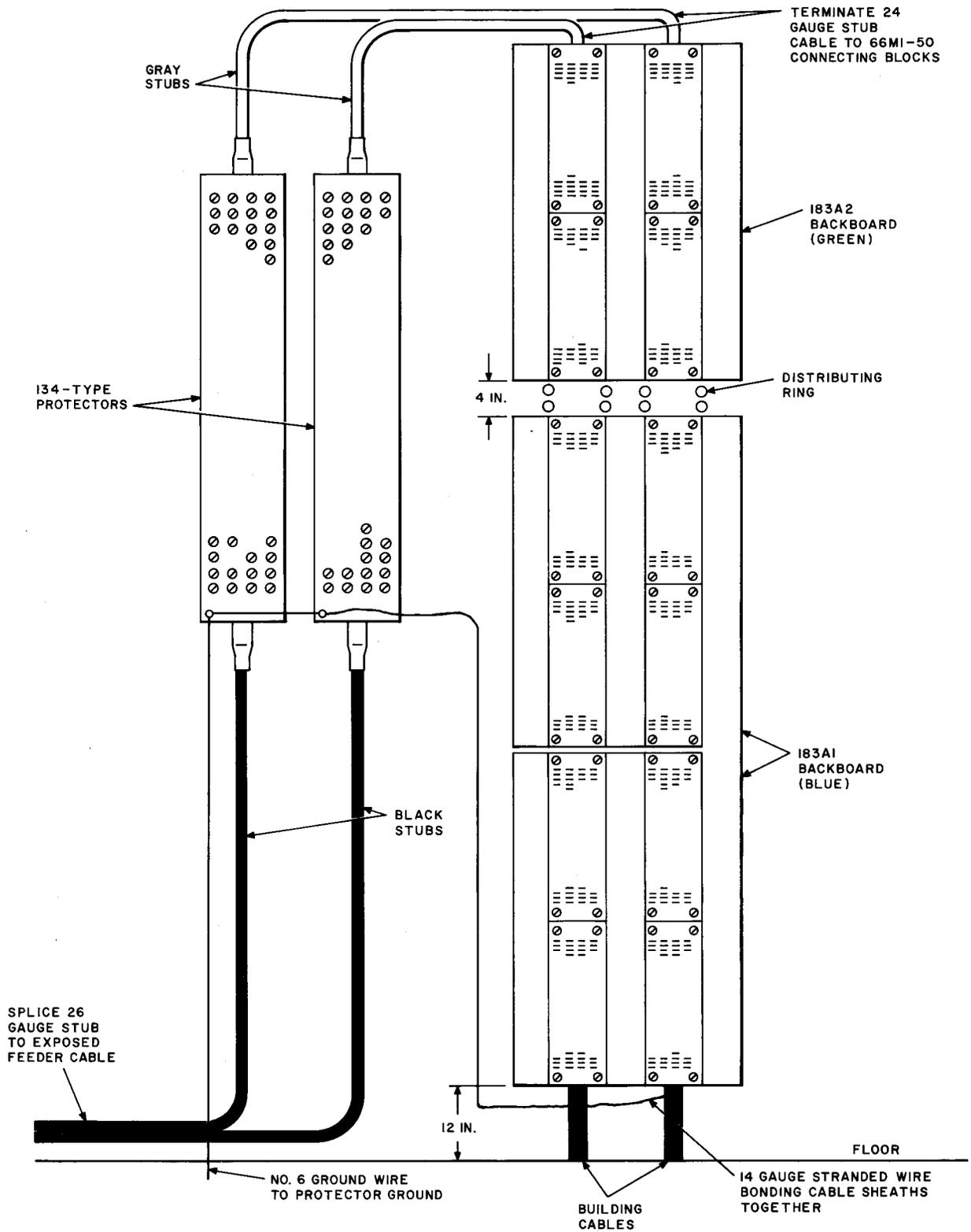


Fig. 15—Wall Mounted Terminal 200 Pair Exposed Entrance Cable and 400 Pair Building Cable

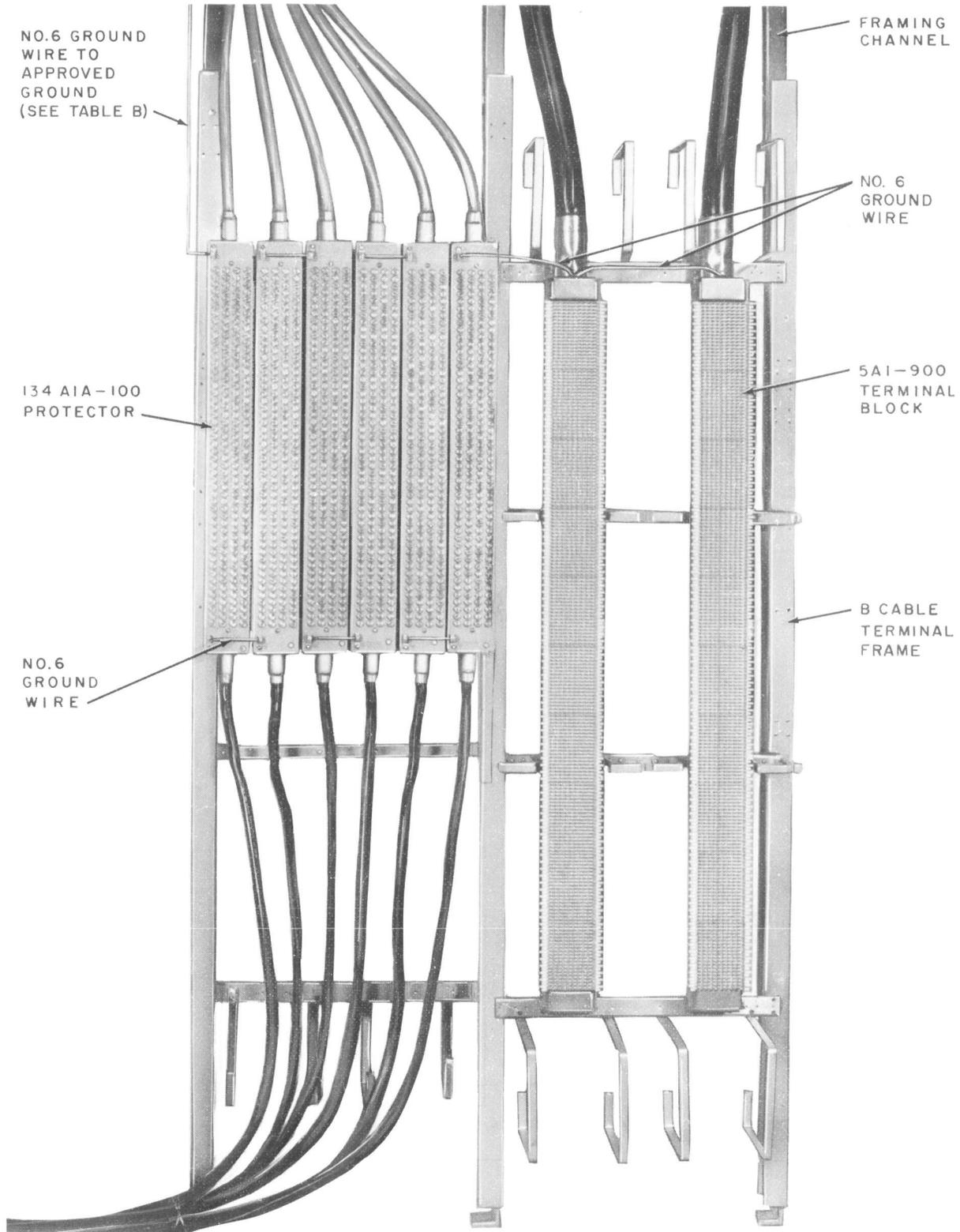


Fig. 16—134-Type Protectors and 5A Terminal Mounted on B Cable Terminal Frame

4.25 Splice the stub cables of the 5A type terminal to the building cable as shown in Fig. 17. Enclose the splice with a K and B splice closure as outlined in Section 633-560-101.

4.26 Splice the gray 24-gauge stub cables of the 134-type protector to the stub cable of the

5A-type terminal and enclose in a K and B splice closure, then splice the black 26-gauge stub cable to the entrance cable and enclose as outlined in Section 631-460-200. Figure 17 illustrates a diagram for splicing of stub cables.

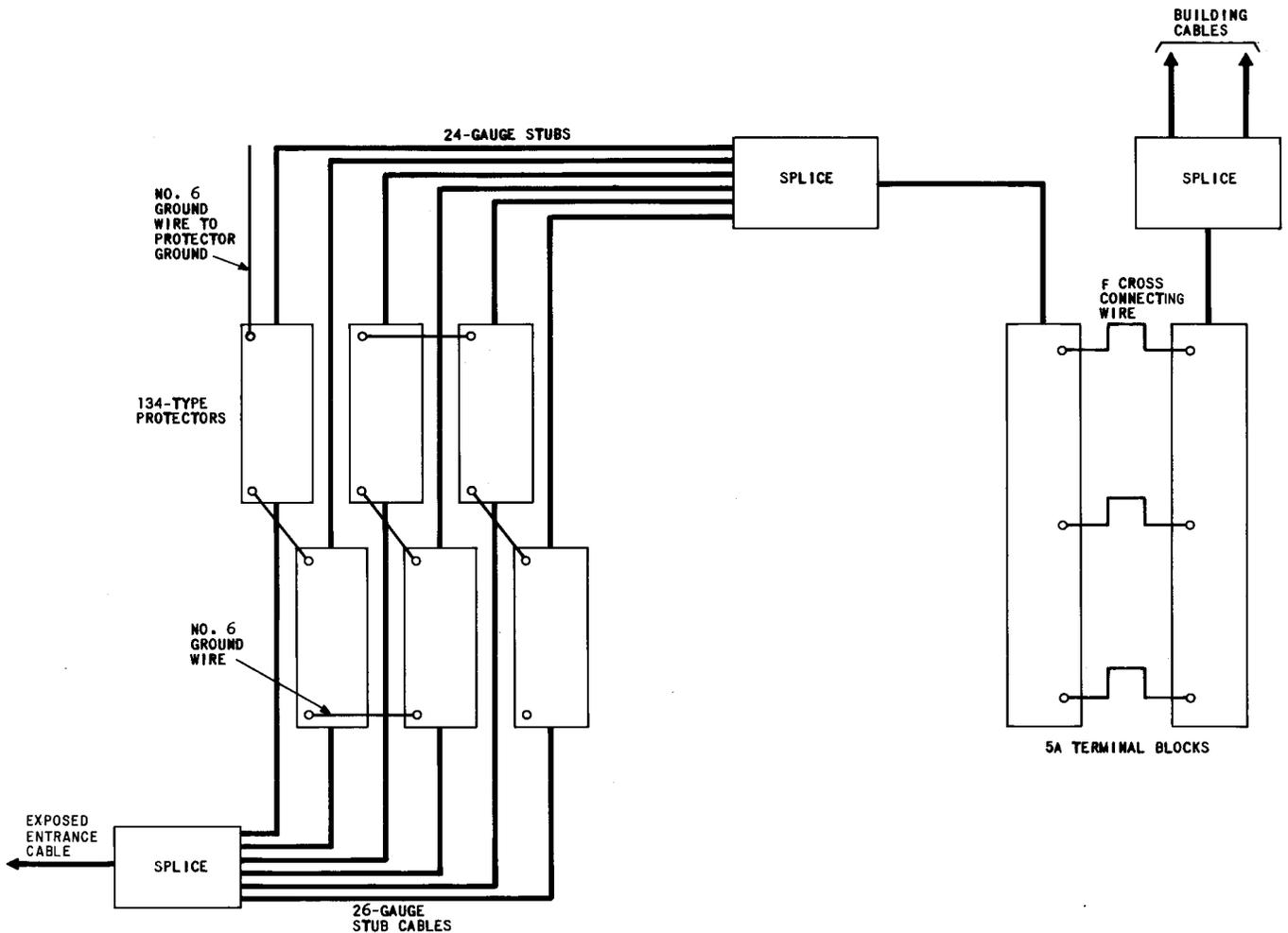


Fig. 17—Wiring Diagram For Splicing Stub Cables

4.27 Figure 18 illustrates the 134A1A-type protector and the 183-type backboards mounted on

the B cable terminal frame at locations where no mechanical protection is required.

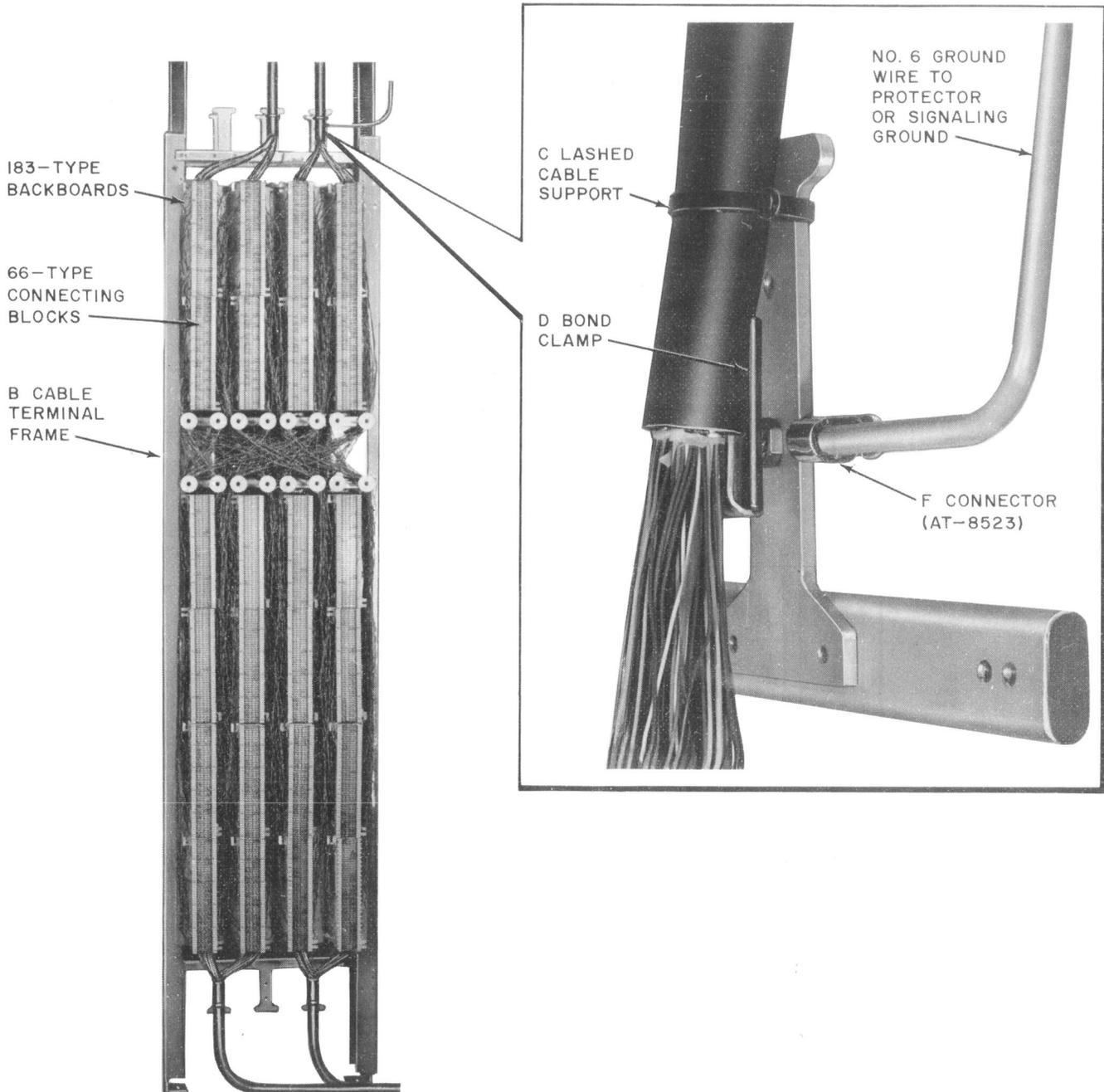


Fig. 18—183-Type Backboards Mounted on B Cable Terminal Frame

**4.28** Terminate the gray 24-gauge stub cable of the 134-type protector on the 66M1-50 connecting blocks mounted on the 183B2 (green) backboards attached to the upper portion of the B cable terminal frame. Splice the black 26-gauge stub cable to the entrance cable and enclose as outlined in Section 631-460-200.

**4.29** Terminate the riser cables on the 66M1-50 connecting blocks mounted on the 183B1 (blue) backboards attached to the lower portion of the B cable terminal frame as outlined in Section 631-400-105.

**4.30** If mechanical protection is required, mount the 134-type protectors and the 5A-type terminals in H303 cable terminal sections.

## **5. INSTALLATION OF TERMINALS SERVED BY UNEXPOSED CABLES**

**5.01** If the unexposed entrance cable entering the building is a PIC (plastic-insulated conductor) cable of 400 pairs or less, it may be terminated directly on 66M1-50 connecting blocks (Fig. 19, 20, 21). When the entrance cable is paper, pulp, or more than 400 pair PIC, it should be spliced to the stub cable of the 5A-type terminal as shown in Fig. 22.

**5.02** The method of constructing terminals served by unexposed feeder cable is identical to the method of constructing terminals served by exposed feeder cables as outlined in Part 4 except the 134-type protector is omitted.

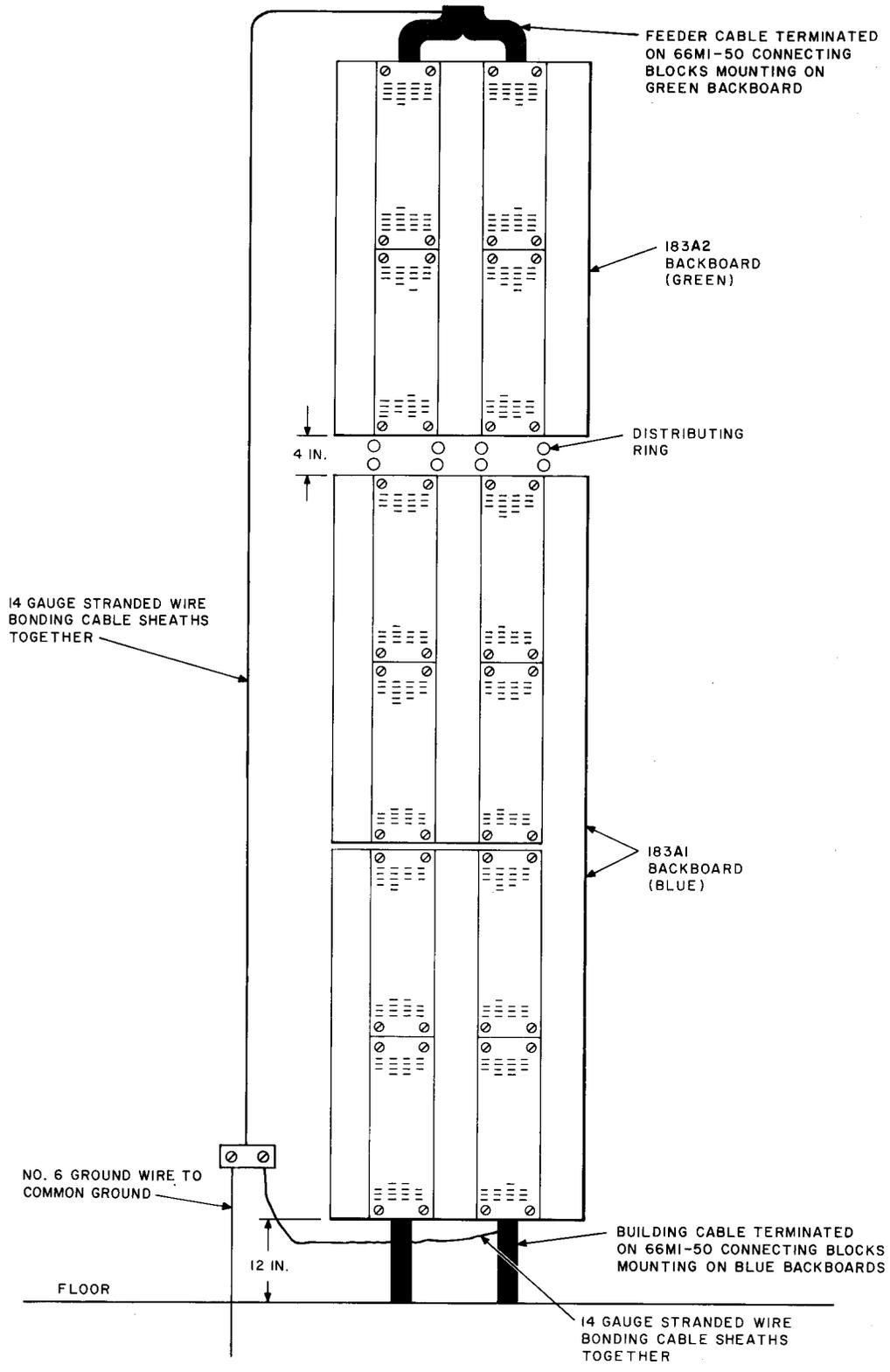


Fig. 19—Wall Mounted Terminal—200 Pair Unexposed Entrance Cable and 400 Pair Building Cables

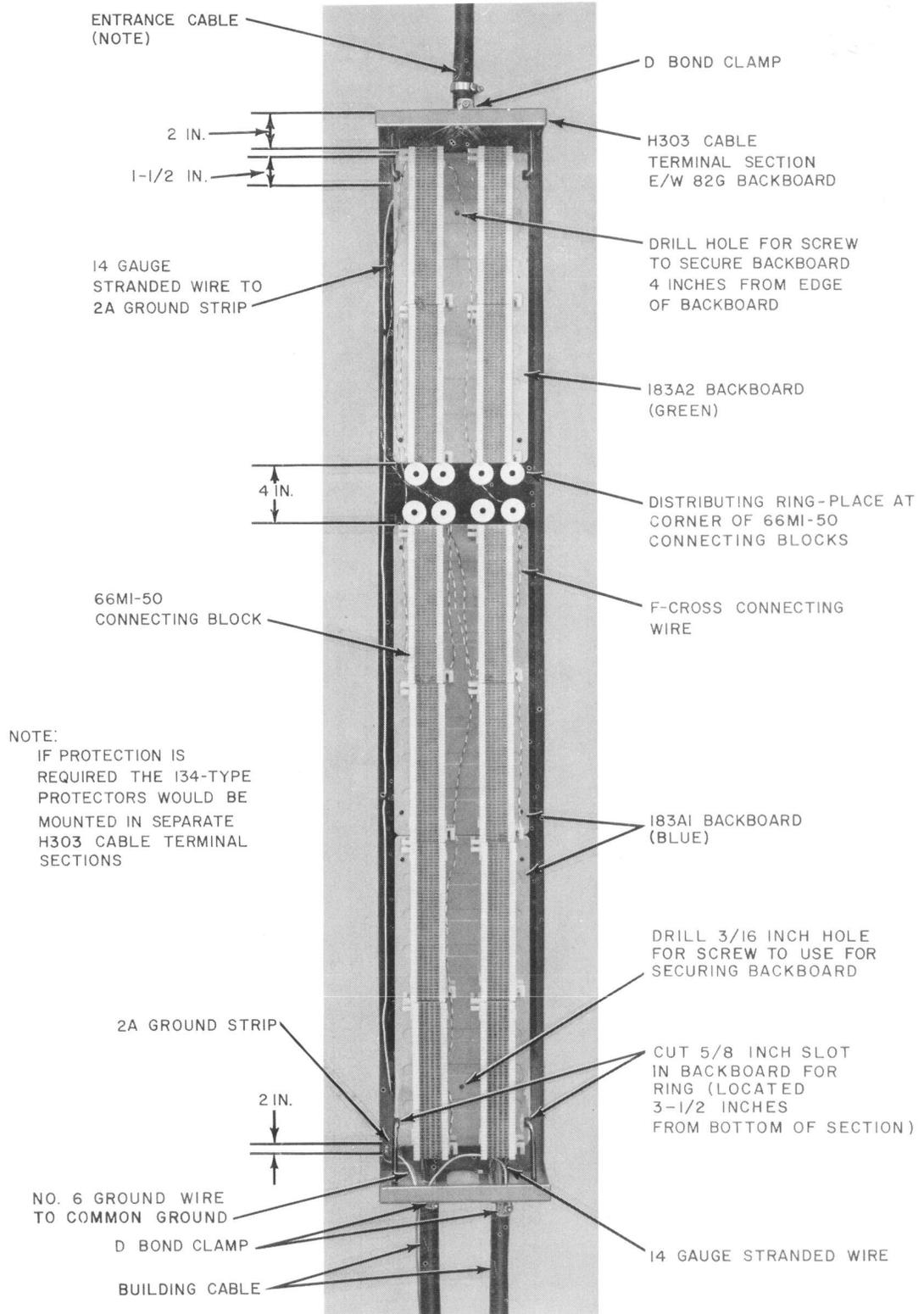


Fig. 20—Method of Mounting Colored Backboards in H303 Cable Terminal Section—200 Pair Unexposed Entrance Cable and 400 Pair Building Cable

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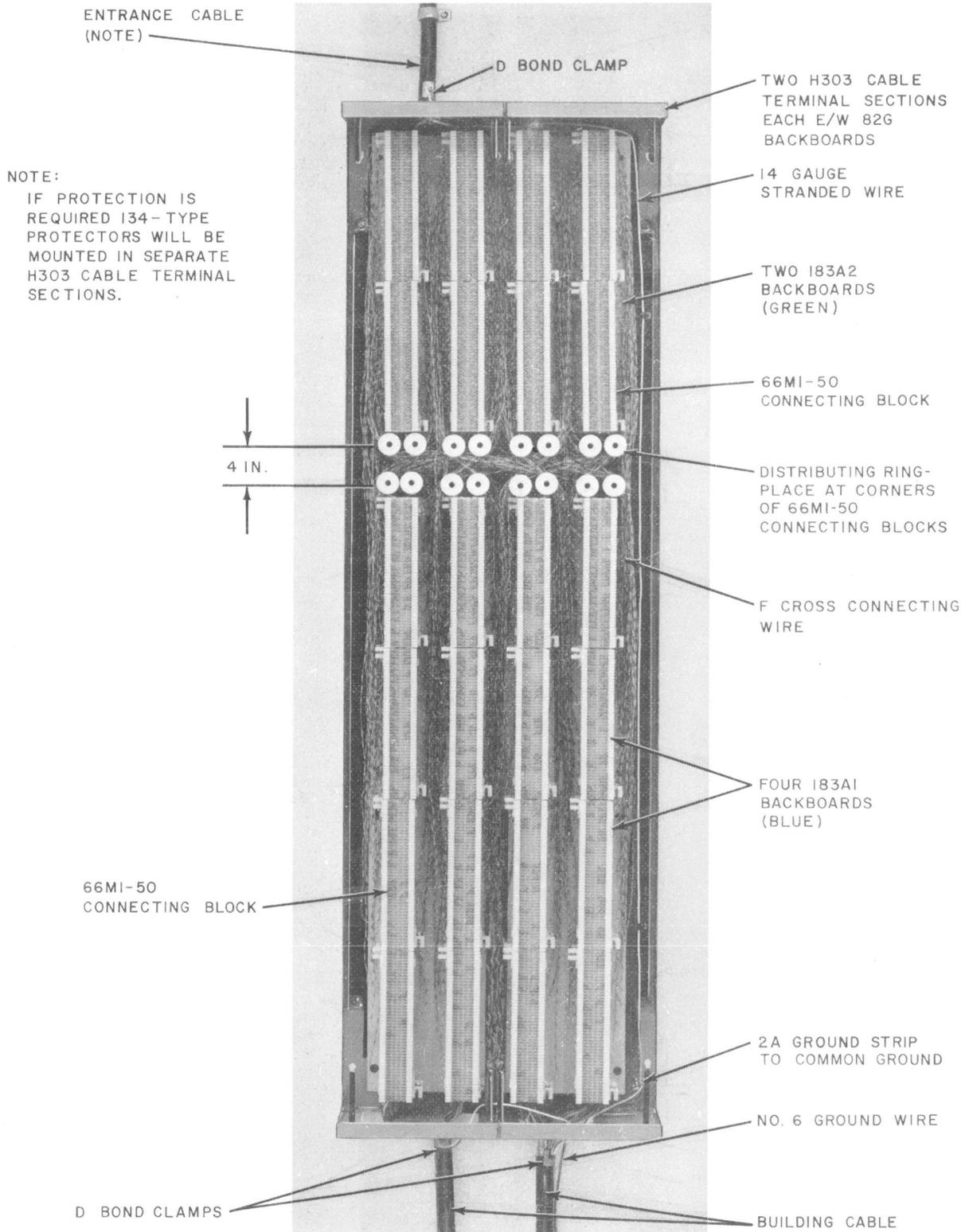
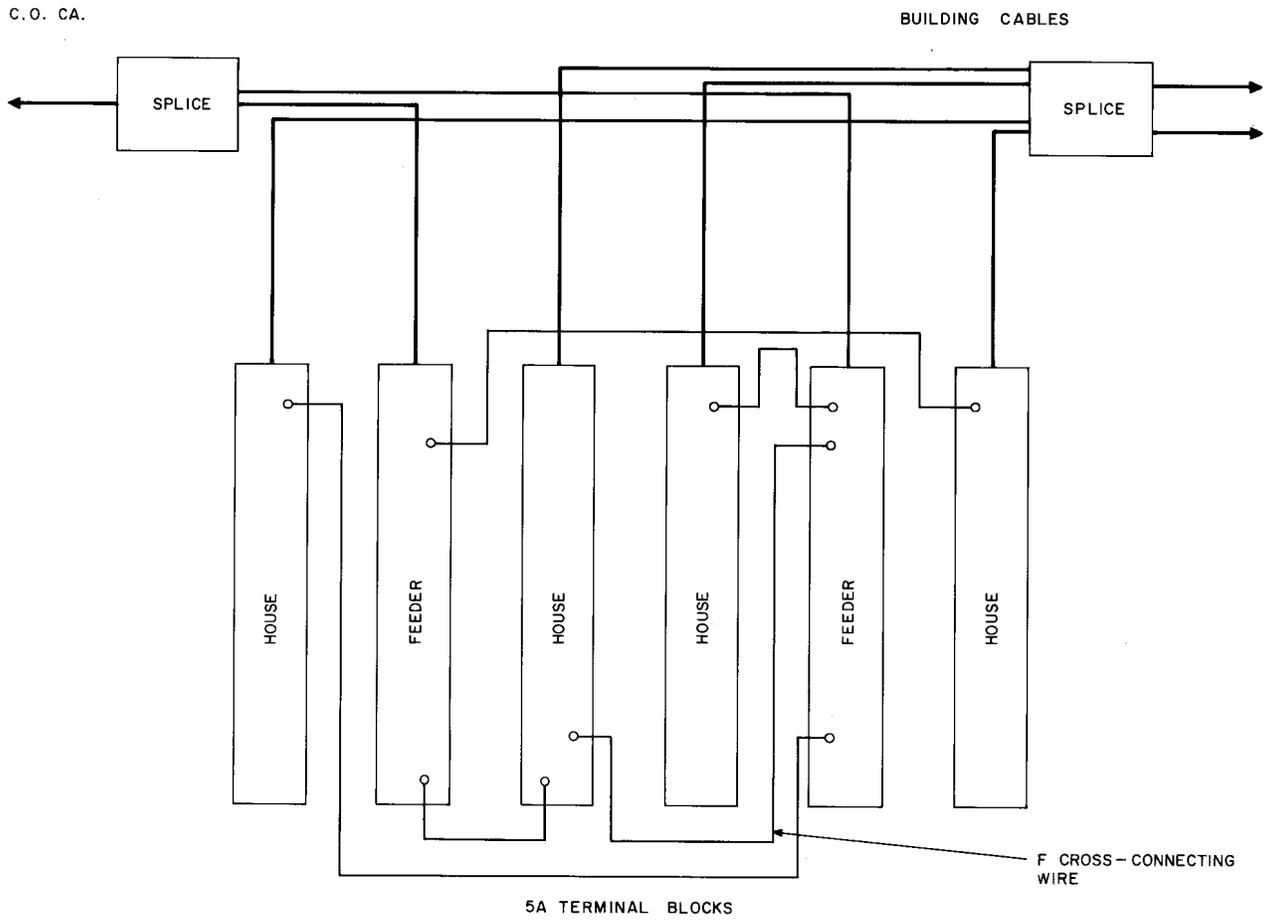


Fig. 21—Colored Backboards Mounted in Two H303 Cable Terminal Sections—400 Pair Unexposed Entrance Cable and 800 Pair Building Cable



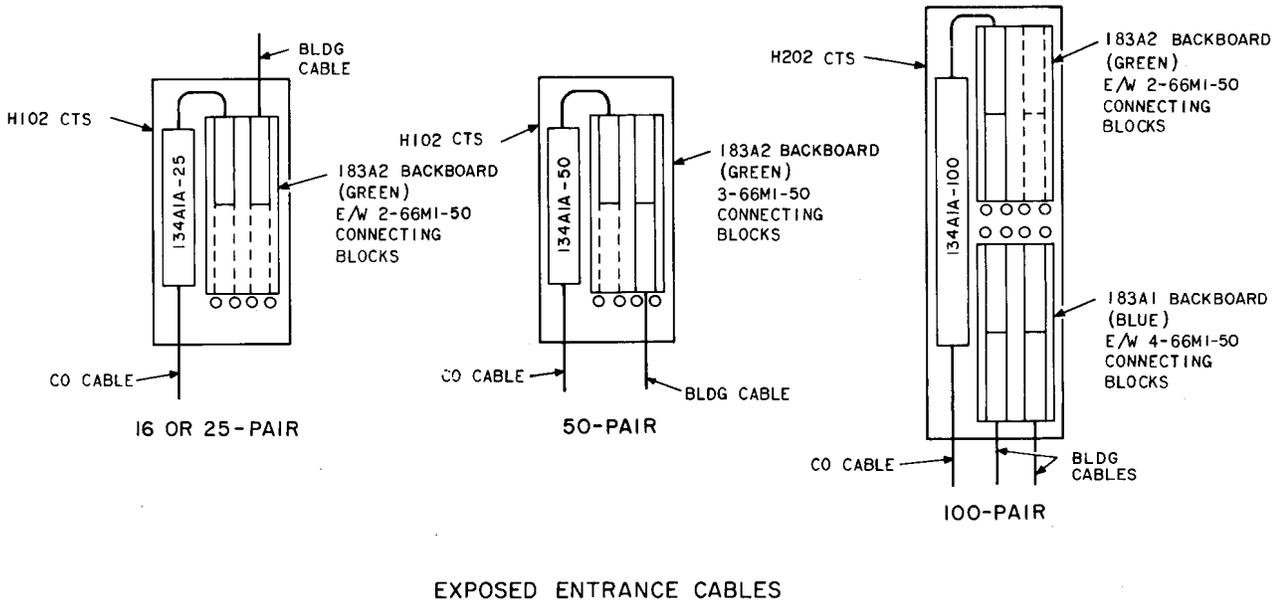
**Fig. 22—Wiring Diagram For Splicing Stub Cable of 5A Terminal Block**

6. TYPICAL EXAMPLES

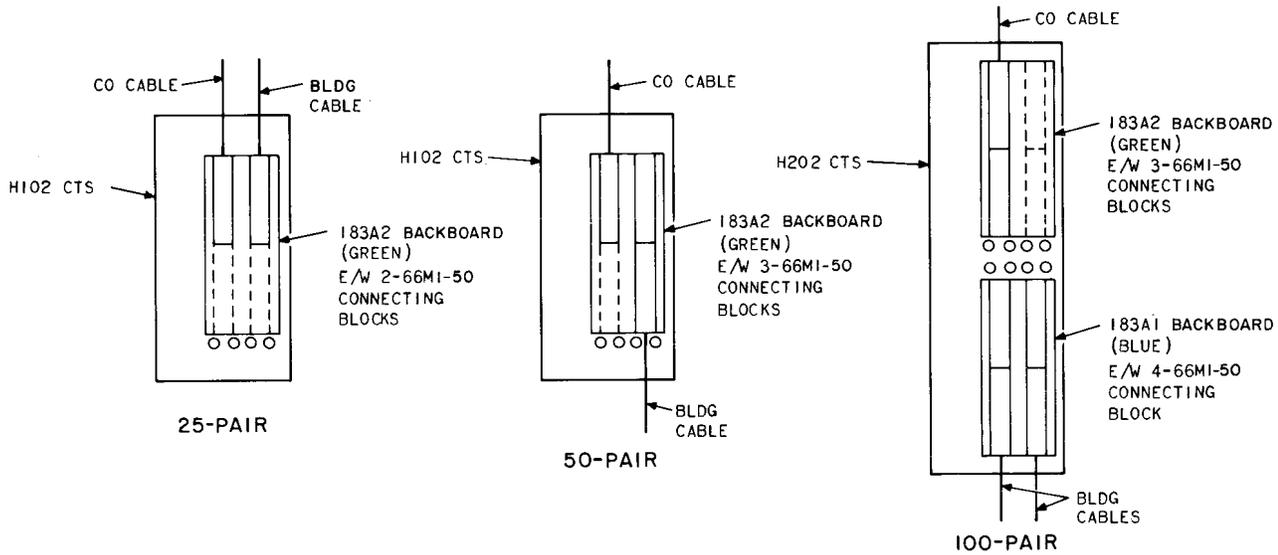
6.01 Typical examples of exposed and unexposed terminals are illustrated in Fig. 23, 24, and 25.

7. WIRING

7.01 Using F cross-connecting wire, connect the outside plant cable pairs to the building cable pairs as outlined in Section 462-265-201.

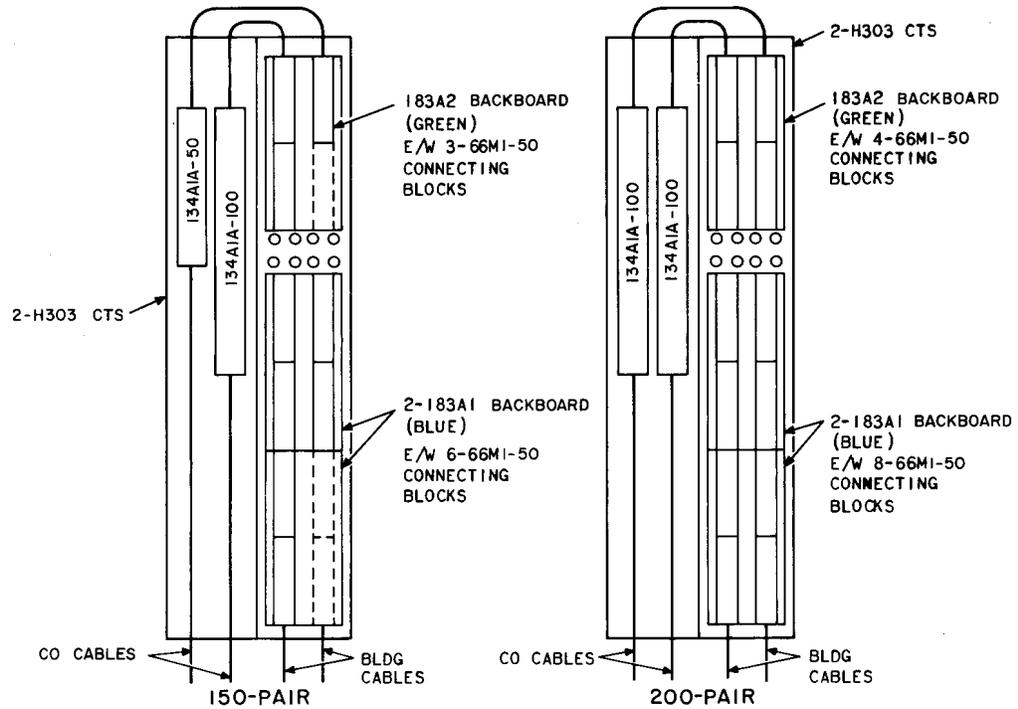


EXPOSED ENTRANCE CABLES

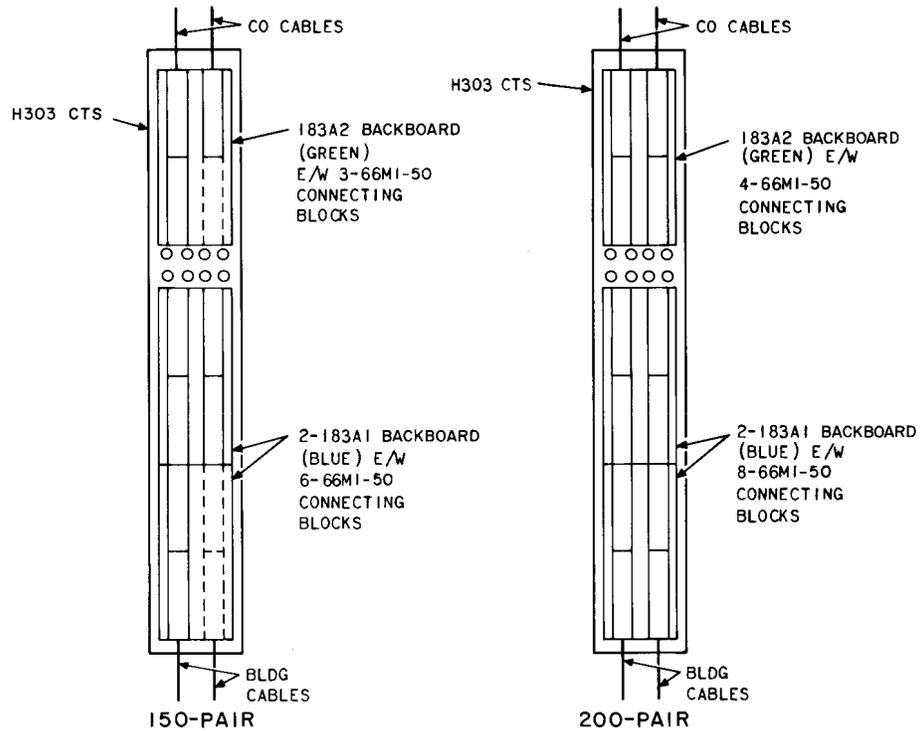


UNEXPOSED ENTRANCE CABLES

Fig. 23—Typical Main Entrance Terminal—25 to 100 Pairs—Exposed and Unexposed



EXPOSED ENTRANCE CABLES



UNEXPOSED ENTRANCE CABLES

Fig. 24—Typical Main Entrance Terminal—150 to 200 Pair—Exposed and Unexposed

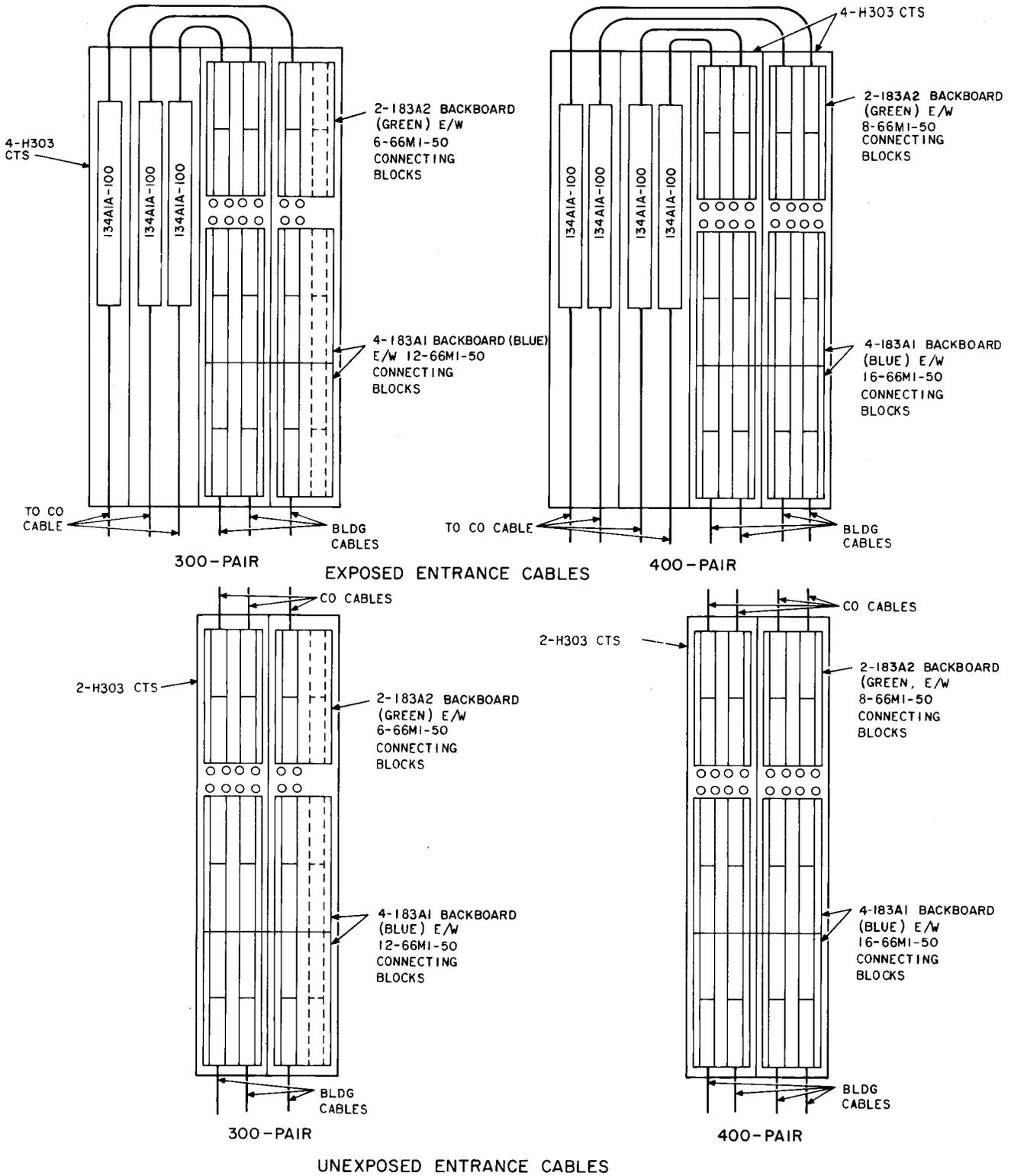


Fig. 25—Typical Main Entrance Terminal—300 to 400 Pair—Exposed and Unexposed