

**BELL SYSTEM PRACTICES**  
**Private Branch Exchange**  
**Installation and Maintenance**

**SECTION B522.215**  
**Issue 1, 7-20-33**  
**Standard**

**INSTALLATION OF NO. 505-B, NO. 505-C,  
NO. 506-A, AND NO. 506-B P.B.X.'S**

**1. GENERAL**

1.01 This section covers the general requirements and methods for installing the No. 505-B, No. 505-C, No. 506-A and No. 506-B P.B.X.'s.

1.02 In connection with the installation work, reference should be made to the general sections in subdivision B502 covering forming, fanning, connecting, etc., when performing work of this nature.

**2. TOOLS AND MATERIALS**

2.01 Certain tools and materials are specified in the practices covering specific installation methods contained in subdivision B502. In addition a test receiver (No. 528 or equivalent) equipped with cords and clips will be required.

**3. REQUIREMENTS AND METHODS**

**Preparation**

3.01 Select a location for the P.B.X. that meets the customer's approval and is satisfactory from the following standpoints:

- (a) **A dry location** should be selected. Do not select a place under a window where rain might enter. Avoid a location adjacent to or under steam or water pipes where moisture from sweating might penetrate the board.
- (b) **Dusty places** or locations where corrosive fumes are likely to be present should be avoided.
- (c) **Excessive vibration** due to machinery or any other cause should be investigated to determine that it is not severe enough to affect the operation of the equipment.

3.02 When installing a 505 type P.B.X. loosen the four lock screws at the top of the front panel and remove the top of the switchboard and lower the front panel.

3.03 When installing a 506 type P.B.X. loosen the three lock screws, two at the top of the front panel and one in the bottom rail of the rear panel, and remove the cover.

## Installing Cross-Connecting Terminal Box

### Installation of Terminal Box

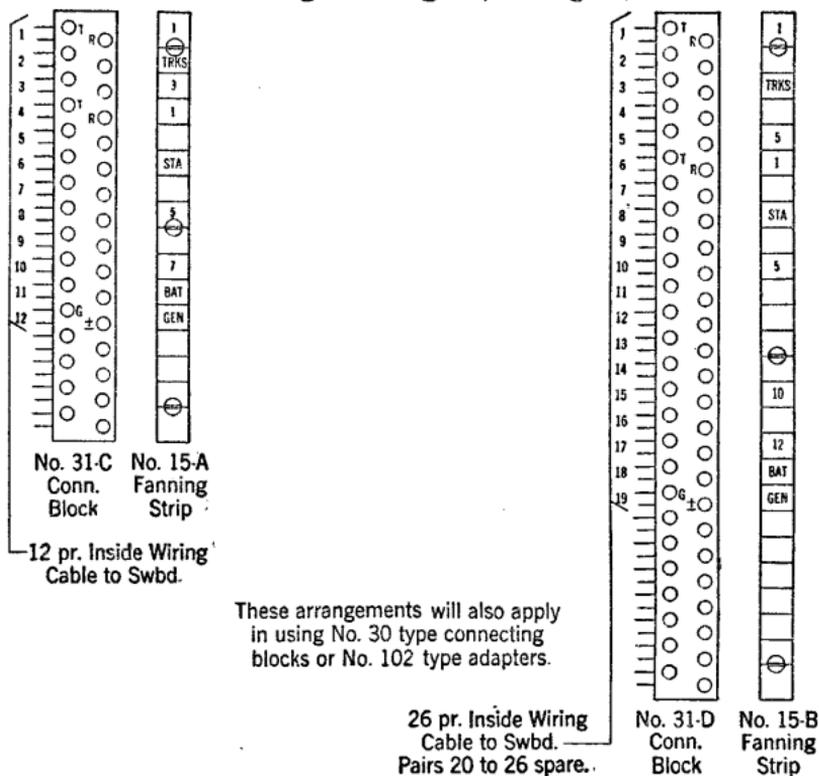
3.04 Locate the terminal box at a point where it will be convenient to the wire center of the installation and fasten to the wall as covered in the section on installation of inside cross-connecting terminals of the Bell System Practices—Outside Plant Construction and Maintenance—(G Series).

### Installation of Connecting Blocks and Fanning Strips

3.05 Place as indicated by Fig. 1. If available space in an existing terminal box is to be used, place the connecting blocks and fanning strips as covered in the section on installation of inside cross-connecting terminals of the Bell System Practices—Outside Plant Construction and Maintenance—(G Series).

### Lettering and Numbering

3.06 Letter and number fanning strips and connecting blocks according to Fig. 1, using 3/16-inch rubber



**Fig. 1—Typical Arrangement at Cross-Connecting Terminal Box.**

stamps and in conformity with the Bell System Practices in this series on "Lettering and Numbering Switchboard Equipment."

### **Running Cable Between Cross-Connecting Terminal and P.B.X.**

3.07 Run cable in accordance with the instructions covered in the sections on placing and fastening wire and cable in buildings of the Bell System Practices—Station Installation and Maintenance—(C Series), leaving sufficient length at the ends for terminating. See Figs. 2 and 3 for method of entering cable into P.B.X. sections.

3.08 When the P.B.X. is to be placed on a desk, table or some movable object, reference should be made to the sections on placing and fastening wire and cable at desks and tables of the Bell System Practices—Station Installation and Maintenance—(C Series). Sufficient slack should be left in the cable to allow for moving desks, tables, etc., for maintenance purposes. This slack should be coiled up at a point where it will be out of sight and the coil fastened with friction tape.

3.09 In cases where, due to a moisture condition, lead covered cable is required instead of inside wiring cable as indicated by Fig. 1, it will be necessary to remove the cable sheathing between the P.B.X and a point where the cable enters a floor outlet, standpipe or similar fitting or where it first fastens to the baseboard, etc. Cover the conductors thus exposed with two layers of friction tape starting at a point on the sheathing approximately one inch beyond the butt and extending to a point on the cable form as shown in Figs. 2 and 3.

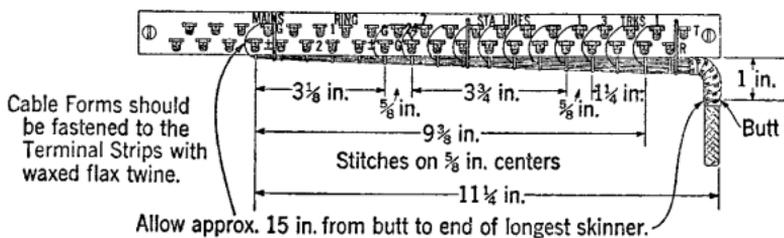
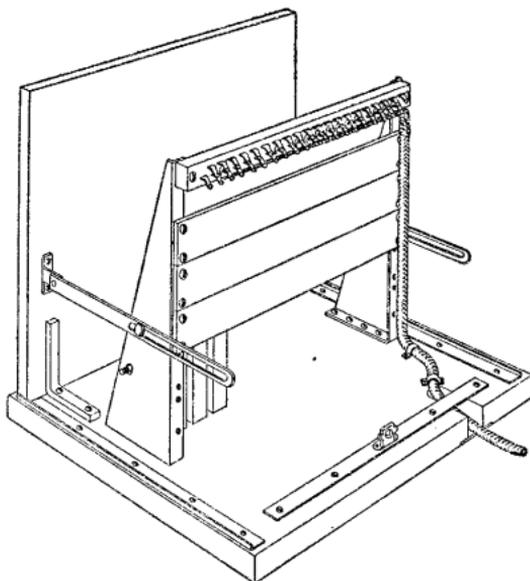
3.10 Form, fan and sew the end of the cable for connection at the P.B.X. as shown in Figs. 2 and 3.

3.11 Place formed cable into position in the P.B.X. in accordance with Fig. 2 or 3, leaving enough slack so that there will be no strain on the skimmers after they are connected.

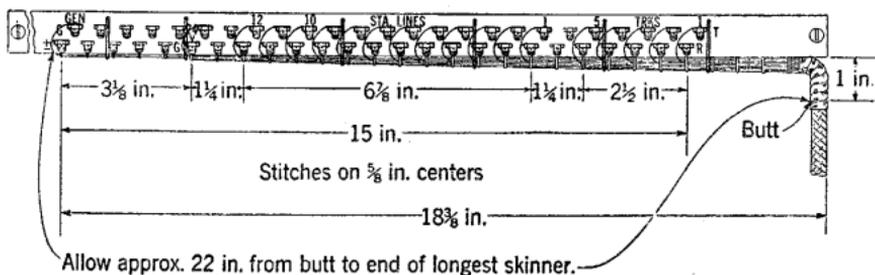
3.12 Skin and connect cable to terminals in accordance with the designations indicated on the terminal strip.

3.13 Form, fan and sew the end of the cable for connection at the cross-connecting terminal according to Fig. 1.

3.14 Place formed cable into position in terminal box, skin and connect to terminals. (Do not connect battery feeders until after making check covered in paragraph 3.17.)



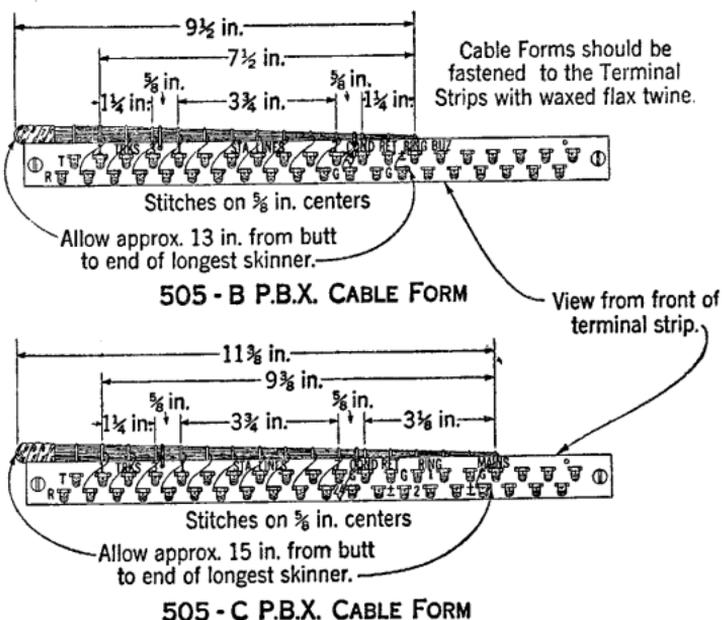
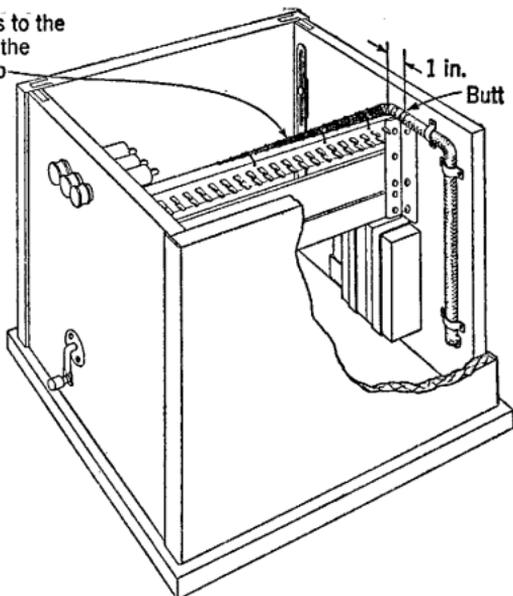
506 - A P.B.X. CABLE FORM



506 - B P.B.X. CABLE FORM

Fig. 2—Typical Cabling Arrangement for 506 Type P.B.X.

Cable connects to the front side of the terminal strip



**Fig. 3—Typical Cabling Arrangement for 505 Type P.B.X.**

### **Strapping of Battery Feeders at Cross-Connecting Terminal Box**

3.15 Usually only one cable pair is used for battery supply between the cross-connecting terminal box and the P.B.X. However, in cases where more than one cable pair is required, strap all tip sides of the same group together for ground and all ring sides of the same group together for battery at the terminal box. (This strapping, when required, will be the same for either metallic or grounded circuits as applied to the switchboard cable.)

### **Installing Ground Connection**

3.16 When a ground return central office battery feeder or grounded building battery feeder is installed, run a No. 14 ground wire from the ground terminals in the cross-connecting terminal box to a ground clamp on a cold water pipe on the street side of the water meter or cut-off valve or the house cable sheath where it has been grounded as covered in the section on house cable placing of the Bell System Practices—(G Series).

**Caution: Do not run this ground connection when a metallic battery feeder is used.**

### **Checking Battery Feeders**

3.17 Before connecting the battery feeders through to the P.B.X. test them for proper condition as follows:

(a) See that the feeders from the central office or building battery have been properly terminated at the cross-connecting terminal box. When feeders come from a building battery see that the proper fusing has been provided at the fuse panel associated with the building battery.

(b) Connect one clip of the test receiver to ground and then touch the other clip alternately to the tip and ring terminals in the cross-connecting box marked "BAT." A loud click should be obtained on the ring terminal.

(c) If a loud click is obtained on the tip terminal instead of the ring terminal, this is an indication that the polarity is reversed and should be corrected.

3.18 Disconnect the test receiver and connect the battery feeders through to the P.B.X. at the cross-connecting terminal box.

## **Miscellaneous Work Items**

### **Modification of Buzzer Circuit**

3.19 When necessary for the installer to change the buzzer circuit from a.c. to d.c. operation or from d.c. to a.c. operation, the work should be done in accordance with the circuit drawing.

### **Installation of Attendant's Telephone Instrument**

3.20 Run the cord from the attendant's telephone instrument through the cord hole, located in the upper part of the left end panel on the 505 type boards or in the lower left side of the front panel on the 506 type boards, and connect to the cord fasteners as indicated by the designations. Also fasten the tie string or stay hook.

### **Modification of P.B.X. When Hand Generator is not Furnished**

3.21 When a hand generator is not furnished with the P.B.X. the contacts on the ringing transfer key (G) or (RINGING) should be strapped together so that, regardless of the position of the key button, ringing current will be connected to the station line ringing keys.

3.22 The hole drilled in the end panel for the generator handle should be covered by an escutcheon plate on 506 type boards or have an apparatus blank inserted into it on 505 type boards.

## **4. INSTALLATION TESTS**

4.01 The tests and inspections required in connection with the installation work as covered by Section B522.221 should be made before turning over the equipment to the customer for use.