

## INSTALLATION 551A, 551B AND 552B PBX

### 1. GENERAL

- 1.01 This section covers the general requirements and methods for installing No. 551A, B, and 552B PBXs.
- 1.02 This section is reissued to describe and illustrate the placing of plastic covered cable in the PBXs, the installation of instruction cards, and the use of multiplug patching cords. Also, certain figures have been revised. Since this issue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

### 2. TOOLS AND MATERIALS

- 2.01 Tools usually employed in PBX installation work.
- 2.02 Materials for protecting the customer's premises or the equipment.

### 3. REQUIREMENTS AND METHODS

- 3.01 When required to move or carry the PBX, precautions shall be taken to guard against personal injury.
- 3.02 Handle the PBX in its packaging whenever possible.
- 3.03 Use a roller dolly to avoid carrying whenever possible.
- 3.04 When handling or setting the PBX down, avoid jarring it excessively as this can result in breakage or disarrangement of the equipment.

#### Placing PBX in Position

- 3.05 Place the PBX in the location selected, which should be in accordance with the information contained in Section 536-490-200.
- 3.06 Remove packing case and check PBX to see that it stands level and firmly on the floor.
- 3.07 Remove shipping screws from the relay gate.

#### One-Position Installation

- 3.08 Before making attachments to any surface having a special finish, obtain permission from the property owner or his agent.

**Caution: Do not drill and fasten PBX to cement floors containing radiant heat.**

- 3.09 Fasten to floor where practicable by means of 1¼-in. by 1¼-in. or equivalent iron corner braces, placing one at the base of each end panel on the inside and approximately 6 inches in from the front as shown in Fig. 1. Also fasten rear of PBX to floor with one No. 14 F. H. Steel Wood Screw or equivalent installed in base of channel for PBX backboard panel as shown in Fig. 2.

#### Two-Position Installation

- 3.10 The work operations outlined in Paragraphs 3.01 to 3.08 inclusive, also apply to two-position installations.
- 3.11 Cut a cable hole in the platform on the side through which cable will enter the PBX. Also cable holes shall be cut through the center section of the platforms so that the cable may be extended into the second section. These holes shall be directly below the location of the hole in the PBX end panel as shown in Fig. 3. (One platform is required for each section of No. 551B or No. 552B PBX when two sections are lined up together. When two sections of No. 551A PBX are lined up together no platforms are required.)

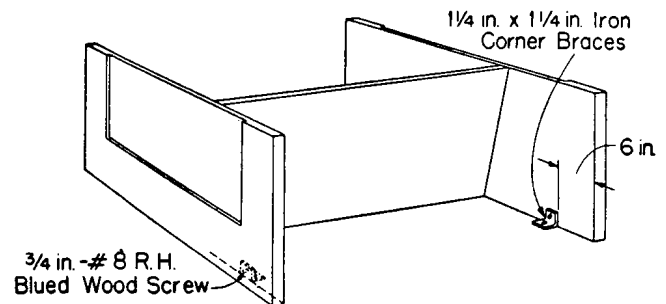


Fig. 1—Front-Fastening Information

Wood Floors  
One 1-inch No. 8 R.H. Steel Wood Screw

Masonry Floors  
One 1-inch No. 8 R.H. Steel Wood Screw and Anchor

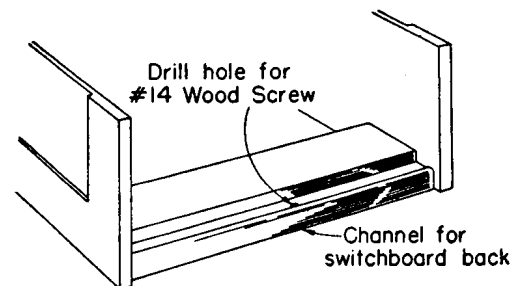


Fig. 2—Back-Fastening Information

Wood Floors  
One 3-inch No. 14 F.H. Steel Wood Screw

Masonry Floors  
One 3-inch No. 14 F.H. Steel Wood Screw and Anchor

- 3.12 Bolt the platforms together in line. See Fig. 3.

- 3.13 Fasten each platform to the floor where practicable by means of the four corner angle iron details as shown in Fig. 3 or by 1¼-in. by 1¼-in. iron corner braces installed similar to Fig. 1 in the front and two 1¼-in. by 1¼-in. iron corner braces placed approximately 6 inches from each end of the platform on the rear.

- 3.14 Mount and fasten PBX sections on the platforms as shown in Fig. 3.

- 3.15 Bolt the PBX sections together as shown in Fig. 4.

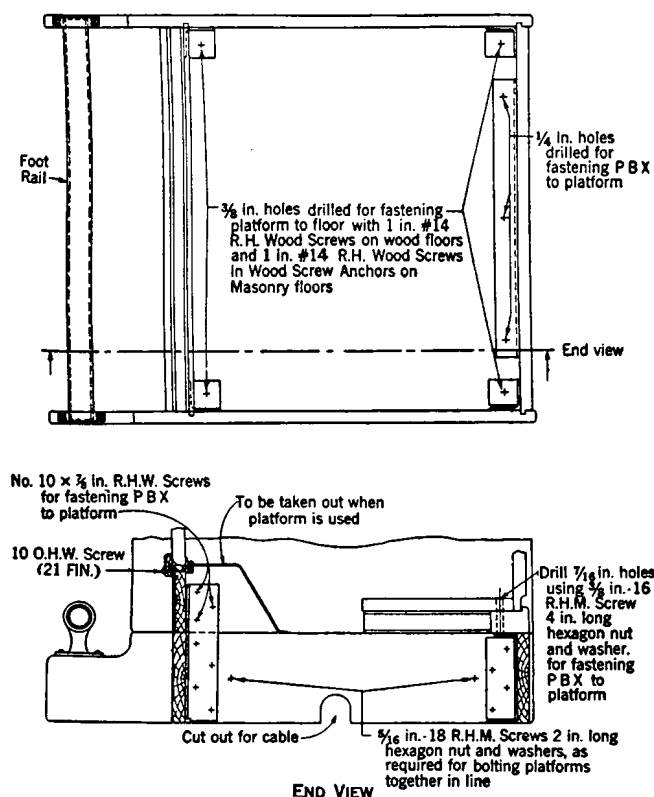


Fig. 3—Switchboard Platform

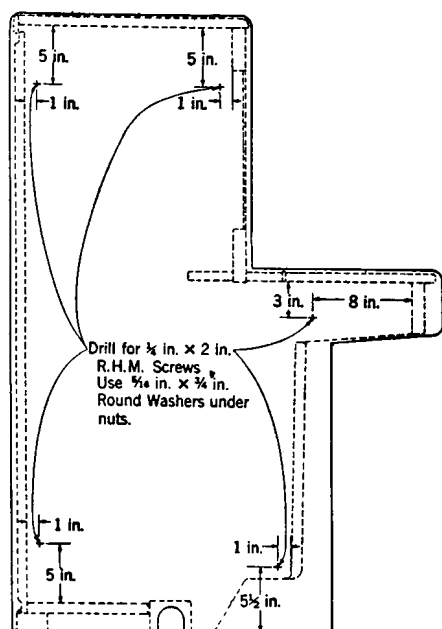


Fig. 4—Drilling Information—No. 551A, 551B, or 552B PBX

#### Installation of PBX Cross-Connecting Terminal

3.16 The size of the cross-connecting terminal box, the number of connecting blocks and fanning strips or the size of the binding post chamber, and the size of switchboard cable will vary with the capacity of the PBX being installed. See Figs. 5 and 6.

3.17 For an 80-line PBX a H101-type binding post chamber equipped with a plastic covered cable stub may be used as the PBX cross-connecting terminal and the cable stub should be wired permanently to the terminal strip of the PBX. Fig. 6 shows a typical arrangement of the chamber.

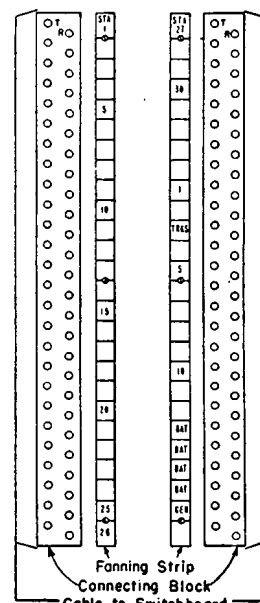


Fig. 5—Typical Arrangement at Cross-Connecting Terminal Box Using 51-Pair Cable

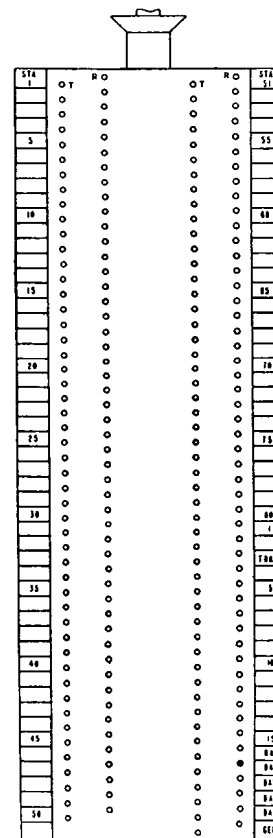


Fig. 6—Typical Arrangement of Binding Post Chamber for 80-Line PBX

3.18 Place the terminal box, connecting blocks and fanning strips, or binding post chamber in accordance with Bell System Practices and job instructions.

3.19 Letter and number the terminal and fanning strips in accordance with Section 460-560-201 covering the lettering and numbering of switchboard equipment.

#### Running Cable Between the Cross-Connecting Terminal and PBX

3.20 Remove the fibre cover from the cable hole in the lower edge of the end panel through which the cable will enter the PBX.

3.21 Run the cable leaving sufficient length at the ends for terminating. See Figs. 7, 8, 9, 10, 11, or 12 for method of entering cable at the PBX.

3.22 The cable may enter the PBX through the cable entrance holes provided at the sides of the PBX or through the floor, as required.

3.23 Form, fan, and sew the end of the cable for connection at the PBX as shown in Figs. 13, 14, 15, 16, or 17 and Section 461-453-210. With the use of plastic covered cable, place the cable butt as close as possible to where fanning starts in the PBX. Place the location of cable butt in PBX as indicated in Figs. 7, 9, 11, or 12, depending on the type of cable sheath.

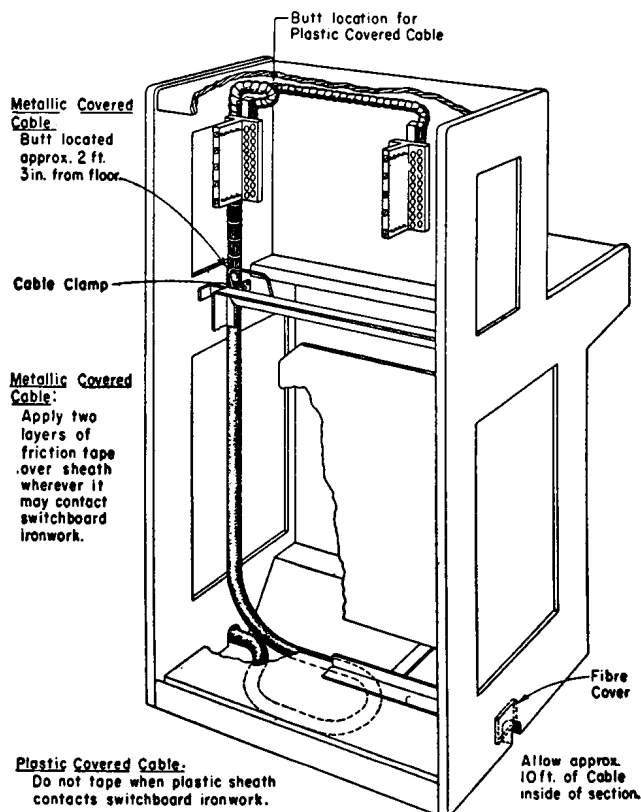


Fig. 7—Cable Entering Left Side—No. 551A PBX

3.24 After cable has been placed and fastened, cut fibre cover, previously removed, to fit snugly around the cable and reinstall it to seal the remaining opening around cable. Platforms should be sealed in the same manner. All unused cable holes should be sealed with fibre. When cable enters PBX through floor, seal opening around cable with Plastic Duct Seal.

3.25 Run the groups of pairs through the proper fanning holes in the terminal strips, skin and connect to the terminals in accordance with the job instructions, circuit drawings, or circuit label furnished with the PBX. For 320-line PBX, skin and terminate leads directly to the station line and trunk

jacks. Mount and align jacks and dress skimmers in accordance with Section 461-455-210. (Refer to Paragraph 3.34 for the wiring of battery feeders for 2-position No. 551A or No. 551B installations.)

3.26 Fan and terminate cable at the main cross-connecting terminal according to Fig. 5 or 6.

#### Metallic Covered Cable:

Apply two layers of friction tape over sheath wherever it may contact switchboard ironwork.

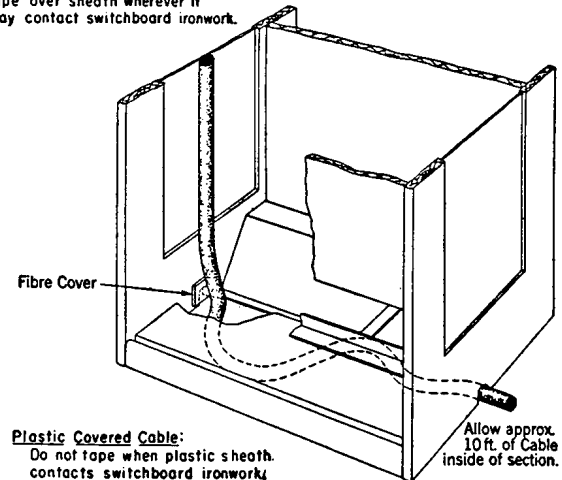


Fig. 8—Cable Entering Right Side—No. 551A PBX

#### Metallic Covered Cable:

Apply two layers of friction tape over sheath wherever it may contact switchboard ironwork.

#### Plastic Covered Cable:

Do not tape when plastic sheath contacts switchboard ironwork.

Top of form 2 ft. 2 in. from floor + (6 in. when platform is used)

Butt location for Metallic Covered Cable.

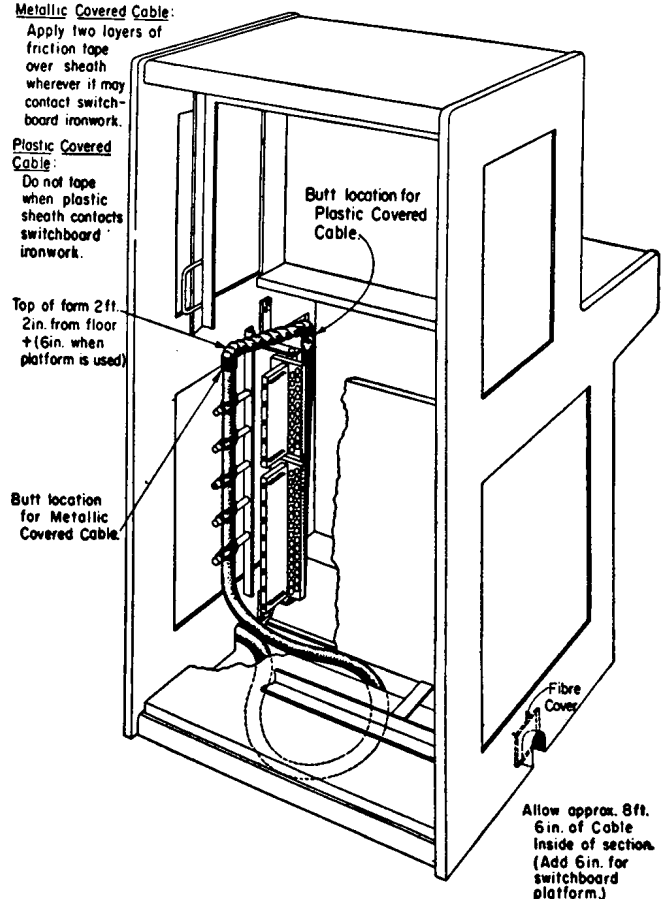


Fig. 9—Cable Entering Left Side—No. 551B—80-Line PBX

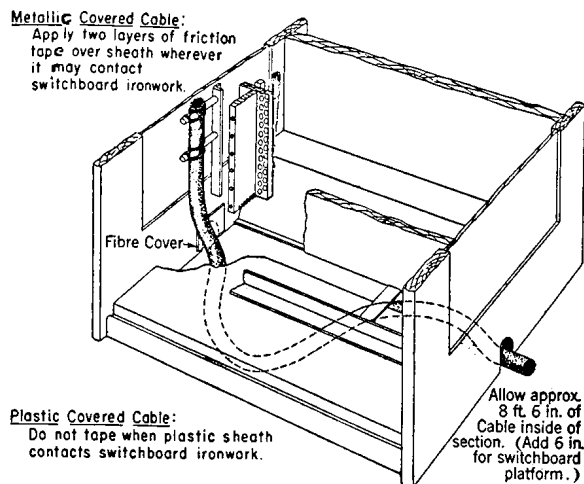


Fig. 10—Cable Entering Right Side—No. 551B-80-Line PBX

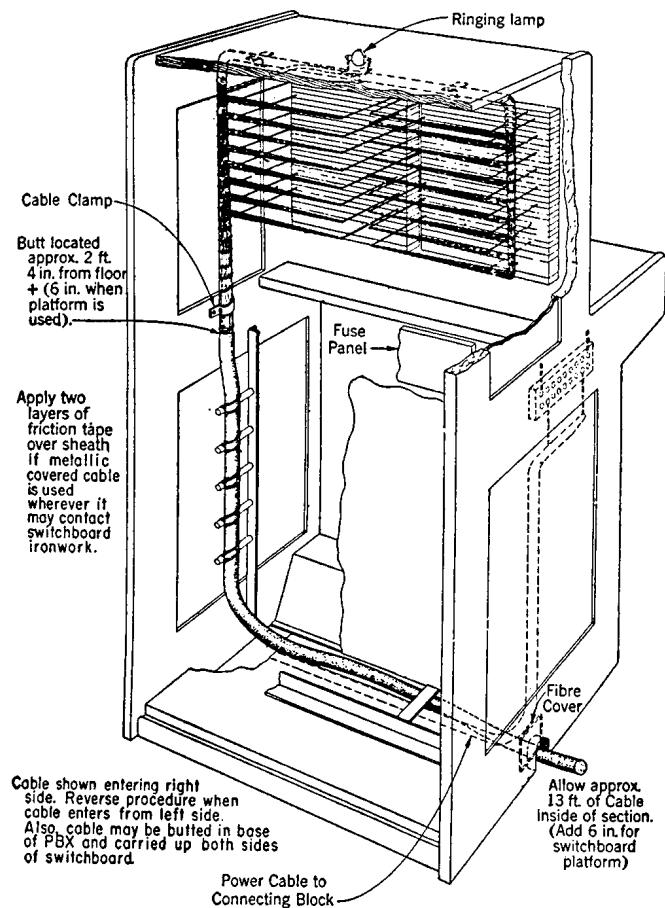


Fig. 12—Cabling for No. 552B-320-Line PBX

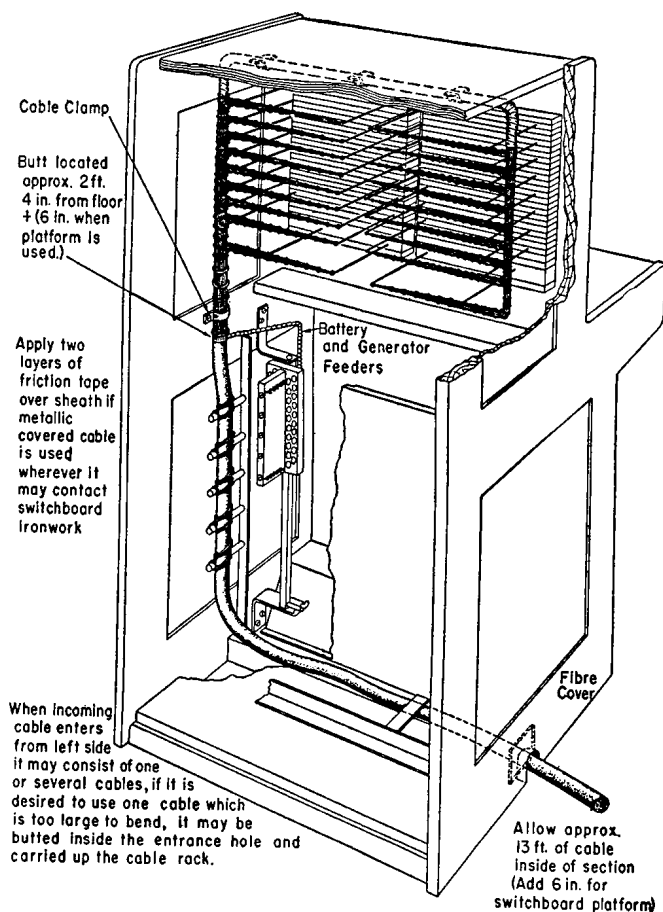


Fig. 11—Cabling for No. 551B-320-Line PBX

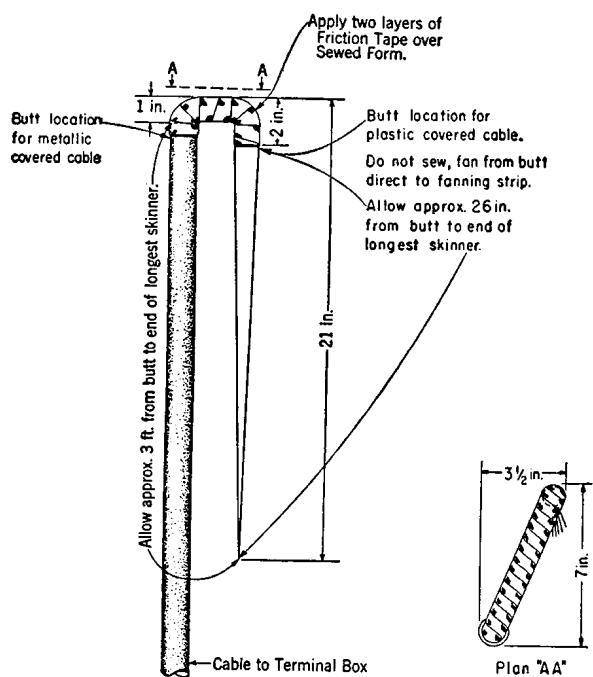
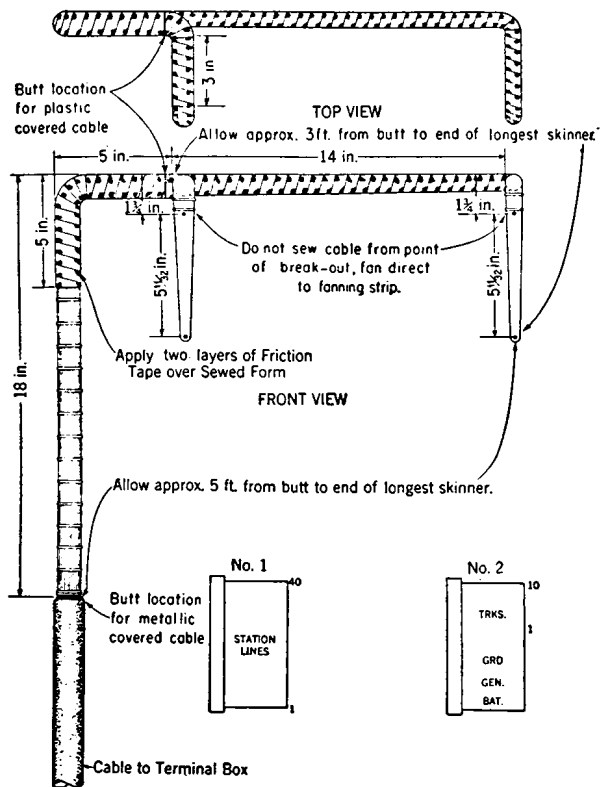
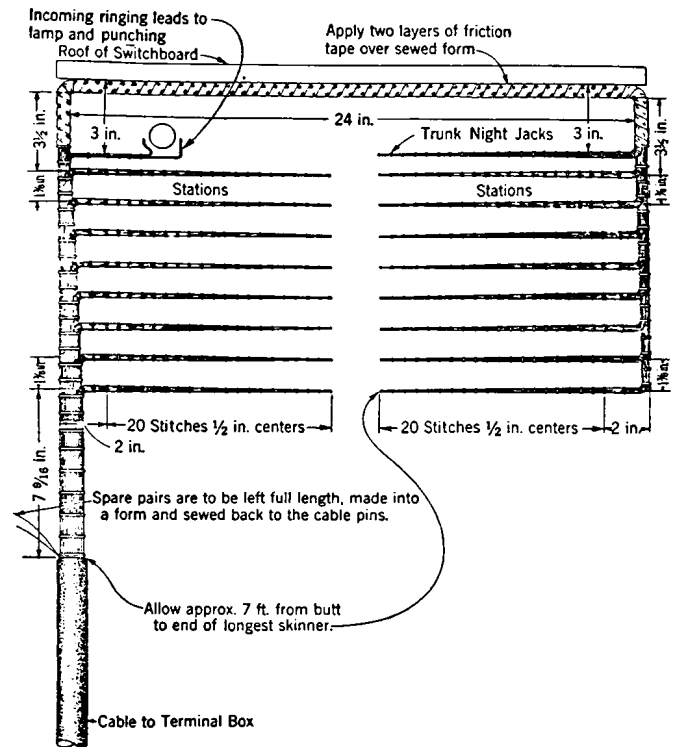


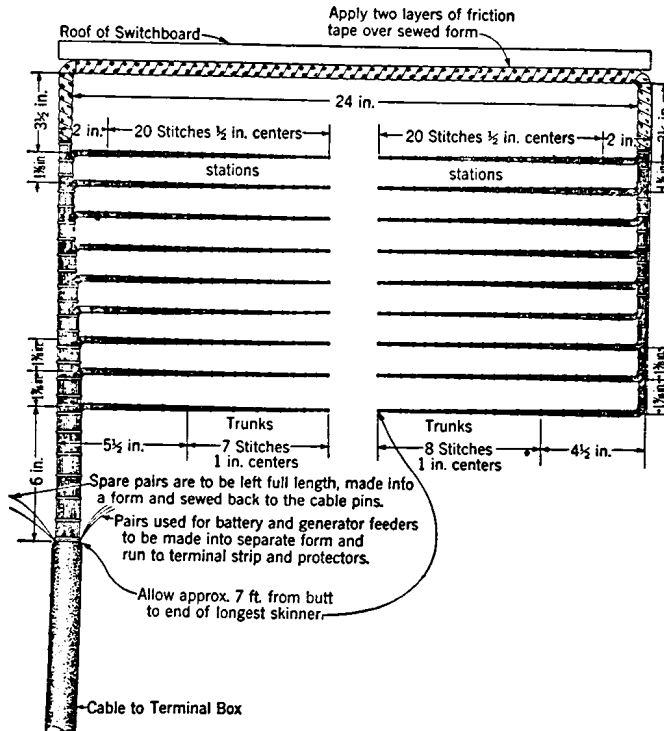
Fig. 13—Cable Form for No. 551B-80-Line PBX



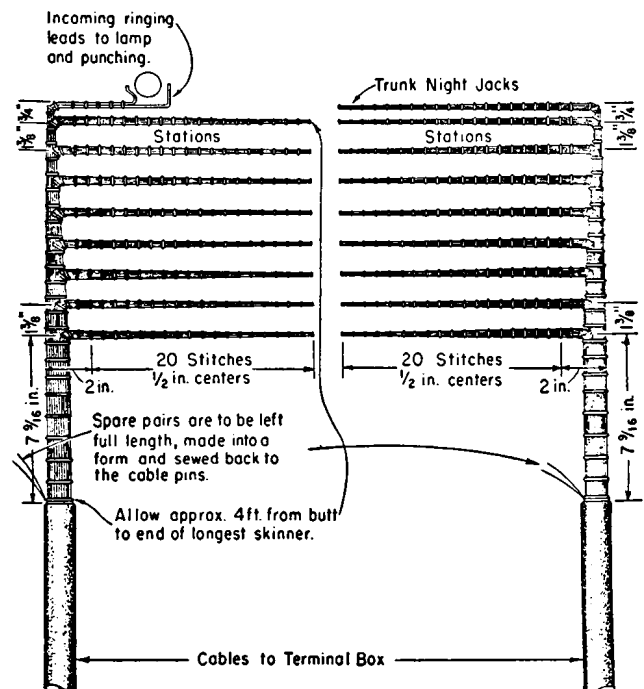
**Fig. 14—Cable Form for No. 551A PBX**



**Fig. 16—Cable Form for No. 552B—320-Line PBX**



**Fig. 15—Cable Form for No. 551B—320-Line PBX**



**Fig. 17—Cable Form for No. 552B—320-Line PBX Carried up Both Sides**



**Strapping of Battery Feeders at Cross-Connecting Terminal Box for No. 551A or No. 551B PBXs**

- 3.27 (a) **Between Terminal Box and PBX:** When more than one cable pair is used for battery supply between the cross-connecting terminal box and the PBX, 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 will be the same for either metallic or grounded circuits as applied to the switchboard cable.)
- (b) **Between Terminal Box and Battery:** If two or more positions are provided and more than one central office or local battery fuse is used, the conductors from each fuse shall be strapped together as a group but there shall be no straps between groups of conductors. This will provide independent fusing for each group.

**Installing Ground Connection**

- 3.28 When a ground return central office battery feeder or building battery feeder is installed, provide the ground as covered in the Bell System Practices on grounding.

Note: To minimize noise effects on PBX stations and to prevent possible electrolysis damage to lead sheath cables or underground pipes, do not use the ground return feeder arrangement from central office battery unless authorized by specific local instructions. The cable sheath return may be used with building battery feeders only if the building battery is locally grounded.

**Checking Battery Feeders No. 551A or No. 551B PBX**

- 3.29 Before connecting the battery feeders through to the PBX 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. Where feeders come from a building battery see that the proper fusing has been provided at the fuse panel adjacent to the building battery.
- (b) In the cross-connecting terminal box connect the (-) terminal of a suitable voltmeter to the ring terminal marked "BAT" and the (+) meter terminal to the tip terminal.
- (c) Observe the voltage reading for a few minutes. Correct conditions causing an unsteady voltage before proceeding. (If the meter shows a reading off scale on the zero side, this is an indication that the polarity is reversed and should be corrected.)
- (d) When the meter indicates that the feeder is in proper condition for use, disconnect the meter.
- 3.30 Connect the battery feeders through to the PBX at the cross-connecting terminal box.

**Fusing PBX Battery Feeders No. 551A or No. 551B PBX Location of 62D Protectors**

- 3.31 On No. 551A PBX sections mount the 62D protectors, when specified, in the first section on the rear of the front panel,  $\frac{1}{4}$  of an inch above the cord shelf. Starting the first mounting  $\frac{3}{8}$  of an inch from the right side of the board looking at the rear, and each additional mounting spaced  $\frac{1}{4}$  of an inch apart.

- 3.32 On No. 551B PBX sections mount the 62D protectors in spaces provided on the rear of the cord shelf of the first section. The protectors shall be mounted on a backboard and spaced  $\frac{1}{4}$  of an inch apart as shown in Fig. 18.

**One-Position Boards**

- 3.33 No fuses are required at the PBX section.

**Two-Position Boards**

- 3.34 Separate battery feeders into two approximately equal groups of conductors with each group fed through a 2-ampere 24C fuse at the first position of the PBX. Each position is then fed through an additional 2-ampere 24C fuse. See Fig. 19 for wiring of these protectors.

**Battery Feeders No. 552B PBX**

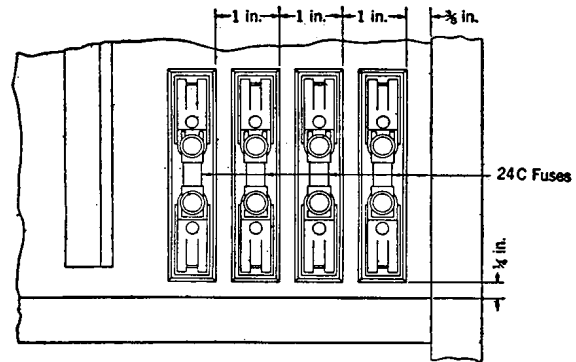
- 3.35 The battery feeders shall be run from the 101F power plant and terminated on the fuse panel in the position in accordance with the circuit drawings.

- 3.36 When no battery reserve is required a 3-ampere, 36-volt, KS-15678, List 9 rectifier may be used for a single position.

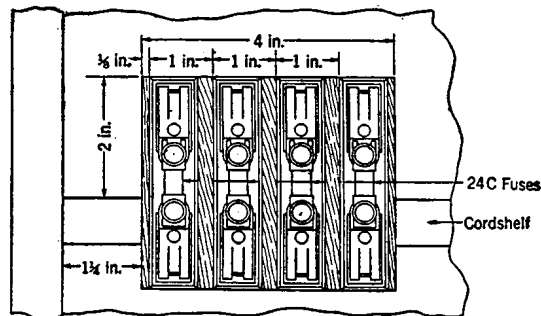
**Miscellaneous Work Items****Modification of PBXs in Manual Districts**

- 3.37 When a No. 551A or No. 551B PBX is connected to a manual central office employing 24-volt, 1000-ohm/1000-ohm line relays in the central office, modify the PBX cord circuits by disconnecting the wire on the lower right terminal of the (E) relay. Also verify that the tip winding of the line relay at the central office associated with each trunk to the PBX has been short-circuited.

- 3.38 See that the PBX dialing circuit is strapped out in accordance with the circuit drawing.



62D PROTECTORS MOUNTED ON REAR OF FRONT PANEL 551A PBX



62D PROTECTORS MOUNTED ON REAR OF CORDSHELF 551B PBX

Fig. 18—Mounting Information for Protectors

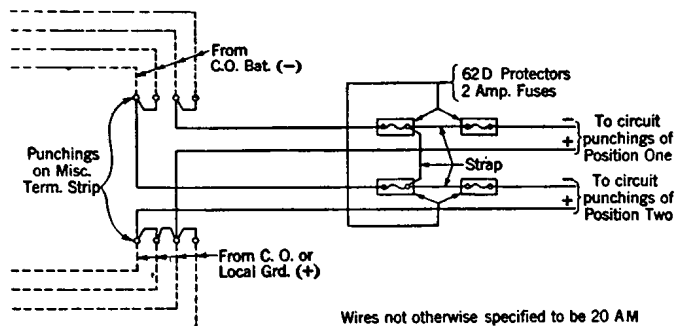


Fig. 19—Wiring of Protectors on 551A and 551B Sections

**Installation of Local Storage Battery Unit**

- 3.39 When a local storage battery unit is to be provided refer to Division Index 167-000-000.

**Installation of Metallic Rectifier**

- 3.40 When a metallic rectifier is to be provided, refer to Division Index 169-000-000.

**Modification of Buzzer Circuit**

- 3.41 When it is necessary for the installer to change the buzzer circuit from ac to dc operation or from dc to ac operation, the work should be done in accordance with the circuit drawing.

**Installation of Handset Hanger**

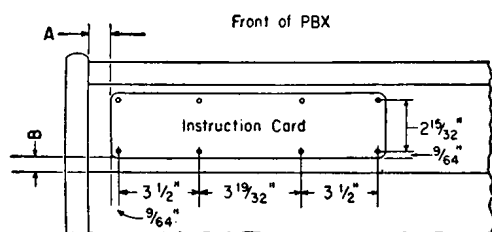
- 3.42 When a handset hanger is to be provided, refer to Section 534-500-207.

**Mounting Miscellaneous Equipment**

- 3.43 Mount transmitter arm, transmitter, generator handle, lamps and lamp caps as required.  
(a) Install lamps in No. 552B PBX in accordance with circuit drawing as specified for the power plant provided.

**Instruction Cards**

- 3.44 Each 551A or 551B PBX should be equipped with an operating instruction card which is normally supplied as part of the PBX. When required for replacement purposes the card should be provided as shown in Fig. 20.  
3.45 Instruction card is printed on both sides, one side covers manual areas and the reverse side dial areas.



TYPE PBX	DIMENSIONS		INSTRUCTION CARD
	A	B	
551A	0 in.	3/4 in.	P-266720
551B	1/2 in.	5/16 in.	

NOTE: 552B PBX is not provided with an Instruction Card.

**Fig. 20—Installation of Instruction Card**

- 3.46 The location of the instruction card is shown in Fig. 20.  
3.47 Eight No. 2 R.H.N.P. 1/2-inch wood screws (P-30063) are required for fastening the instruction card.

**Installation of Grouping Key**

- 3.48 When position grouping is required the connections shall be made in accordance with the circuit drawing, locating the key in the position with the cord circuits to be transferred.

**Installation of Foot Switch**

- 3.49 When a foot switch is required to control the buzzer, the connections shall be made in accordance with the circuit drawing.

**Installation of Station Line Relays**

- 3.50 When additional station line relays are required the connections shall be made in accordance with the circuit drawings.

**Installation of Conference Circuit**

- 3.51 When a conference circuit is required the connections shall be made in accordance with the circuit drawing locating the jacks in the lower portion of the face equipment.

**Installation of Tie Trunk Circuit**

- 3.52 When a tie trunk circuit is required the connections shall be made in accordance with the circuit drawings.

**Installation of Long Line Circuit**

- 3.53 When a long line circuit is required the connections shall be made in accordance with the circuit drawings.

**Installation of Long Cords**

- 3.54 Long cords are required in two-position 80- or 320-line boards.

**Multi-Plug Patching Cords for Night Connections**

- 3.55 When these cords are provided, night connections between a central office trunk and two, three, or four station lines can be connected simultaneously. The total number of station ringers bridged on a trunk shall be in accordance with the Bell System Practices.

**4. INSTALLATION TESTS**

- 4.01 Tests and inspections required in connection with the installation work as covered in the Bell System Practices should be made before turning the equipment over to the customer for use.