

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

**SECTION B522.225**  
**Issue 1, 10-1-51**  
**AT&T Co Standard**

## **INSTALLATION OF NO. 507-A AND NO. 507-B P.B.X.'S**

### **1. GENERAL**

1.01 This section covers the general requirements and methods for installing the No. 507-A and No. 507-B P.B.X.'s.

1.02 When shipped to the field the 507-type P.B.X.'s are protected with a carton specially designed for the purpose. When P.B.X.'s are to be returned to the distributing houses, protect them to avoid excessive repair charges and whenever available, use the factory carton for the purpose.

### **2. TOOLS AND MATERIALS**

2.01 Any tools and materials normally required for installing P.B.X.'s.

2.02 Any material required for protecting the customer's premises or the equipment during installation, such as heavy paper, a muslin catch sheet, etc.

### **3. REQUIREMENTS AND METHODS**

#### **Selecting a P.B.X. Location**

3.01 Select a suitable location acceptable to the customer and with the following reservations.

3.02 Avoid locations where moisture, excessive dust, corrosive fumes, or vibration due to machinery or any other cause, may affect the operation of the equipment.

3.03 Avoid locations exposed to strong daylight, especially sunlight.

3.04 Avoid locations on bare metal topped desks or counters, or where P.B.X. is likely to be moved into contact with locally grounded metal structures, such as pipes, window frames, etc. (The P.B.X. is metallic. Sec. 3.45.)

#### **Preparation**

3.05 Spread any available protective material. Remove the P.B.X. from shipping carton and place it on the material. Remove the four screws from the wooden base plate which is secured to the P.B.X.

3.06 Carefully place the P.B.X. on the desk, table or other location selected.

Note: In general it is intended that the P.B.X. will be mounted on top of a piece of office furniture, without being fastened.

3.07 Carefully remove the plug-in designation strip and loosen the two cover hold-down screws. Remove the cover by lifting the front end high enough to clear the keys and pushing gently toward the rear to disengage the back catches. Place the cover where its finish will not be marred while the P.B.X. is being installed.

3.08 Loosen the two "Turn-Spring" screws and raise or lower the keyshelf by means of the hand hole provided in front.

Note: When the P.B.X. is approached from the front, the following method of raising and lowering the keyshelf applies. When the P.B.X. is approached from the rear, the position of the right and left hands is reversed.

**To Raise:**

3.09 Place the fingers of the right hand in the hand hole, take a firm grip and raise the keyshelf. Do not release the right hand until the keyshelf is safely locked in position.

**To Lower:**

3.10 Place the fingers of the right hand in the hand hole and take a firm grip. Place the fingers of the left hand on the pawl of the keyshelf brace. Raise the keyshelf slightly and at the same time raise the pawl. Lower the keyshelf. Do not release the right or left hands until the keyshelf is safely resting on the base.

**Running Cable Between Terminal and P.B.X.**

3.11 Run and fasten cable in accordance with the instructions covered in the sections on placing and fastening wire and cable in buildings and at desks and tables of the Bell System Practices—Station Installation and Maintenance—(C Series). See Fig. 1 of this section for method of entering and placing cable.

3.12 Strip and fan the cable and connect to terminals on the terminal strip in the P.B.X. in accordance with the circuit drawings.

3.13 Strip and fan the cable and connect to terminals in the cable terminal as shown in Fig. 2. (Do not connect battery or generator feeders until after making checks covered in 3.16 and 3.20.)

## Installing Inside Distributing Terminal

### Installation of Terminal

3.14 If local conditions warrant, an intermediate distributing terminal may be used. Locate the terminal at any convenient point along the cable run and fasten to the wall as covered in the section on Installation of Inside Distributing Terminals of the Bell System Practices—Outside Plant Construction and Maintenance—(G Series).

### Lettering and Numbering

3.15 Letter and number fanning strips, using 3/16-inch rubber stamps as shown in Fig. 2.

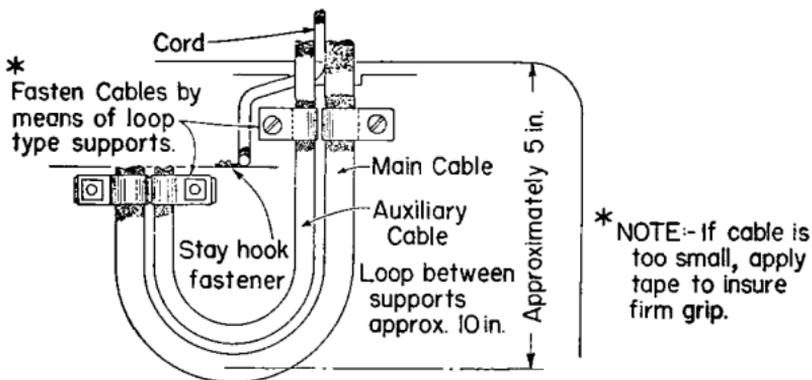


FIG. A - TOP VIEW  
Right Rear Section 507A or 507B P.B.X.

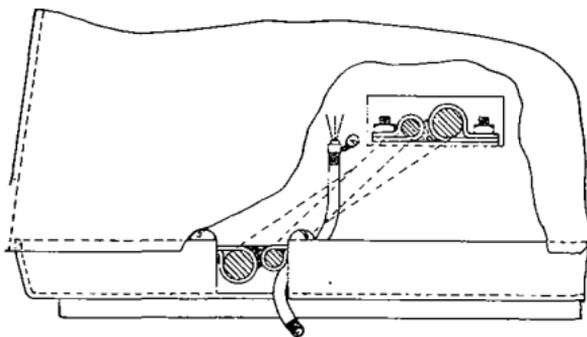


FIG. B - REAR VIEW

Fig. 1—Typical Cabling and Cording Arrangement for  
507 Type P.B.X.

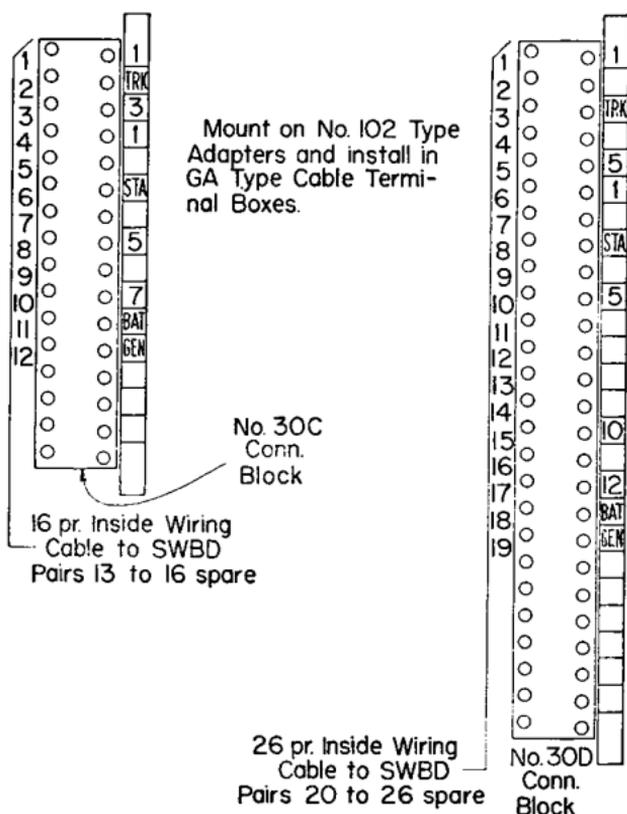


Fig. 2

## Battery and Ground Supply

### Checking Battery Feeders

3.16 Before connecting the battery feeders through to the P.B.X., test them as follows:

Note: When feeders come from a building battery see that the proper fusing has been provided at the fuse panel associated with the building battery.

- (a) Connect one clip of the hand test set to local ground. Touch the other clip to the ring terminal and then to the tip terminal. Observe that a louder click is heard in the receiver when the ring terminal is touched. (If a louder click is obtained on the tip terminal, this is an indication that the polarity is reversed and should be corrected.)
- (b) Disconnect the hand test set.

- (c) When more than one cable pair is used for battery supply, repeat (a) and (b) above.

Note: Where required, for minimum voltage requirements refer to Section B204.441 covering Resistance Measurements of Direct Feeders.

### **Strapping Battery Feeders at Terminal**

- 3.17 When more than one cable pair is used for battery supply, strap all the tip sides of the same group together for ground and all the ring sides of the same group together for battery at the terminal.

### **Installing Ground Connection**

- 3.18 When a ground return central office battery feeder or grounded building battery feeder is to be used, provide the ground as covered in the sections on grounding of the Bell System Practices—Outside Plant Construction and Maintenance (G Series).

Note: To minimize noise effects on P.B.X. 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 grounded building battery feeders.

- 3.19 Connect the battery feeders through to the P.B.X. at the terminal.

### **Ringling Supply**

- 3.20 Before connecting the generator feeder through to the P.B.X., test as follows:

(a) Connect one clip of the hand test set to the tip side of the battery feeder or to local ground. Touch the other clip to the ring side of the generator feeder. Note that ringing induction is heard in the receiver.

(b) Disconnect the hand test set.

- 3.21 Connect the generator feeder through to the P.B.X.

### **Miscellaneous Work Items**

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

- 3.22 **Telephone Set Without Switching Keys in the Base:**  
Modify the telephone set and ringer per SD-65680-01,

Fig. 8.

3.23 Enter the cord from the telephone set through the hole in the rear of the P.B.X. and fasten the stay hook to the stay hook fastener, as shown in Fig. 1. Fan the cord conductors and terminate as indicated by the circuit drawings.

3.24 **Key Telephone Set With 6 Pickup Keys, but No Holding:** Modify the telephone set and ringer per SD-65680-01, Fig. 101.

3.25 Mount the telephone set on a desk, table, etc., and connect to 44-type connecting blocks as covered in the section on installation of 1A key telephone systems of the Bell System Practices—Station Installation and Maintenance—(C Series).

3.26 Run and fasten cable between the connecting blocks and the distributing terminal.

3.27 Strip and fan the cable and terminate the conductors in accordance with the circuit drawing.

3.28 **Key Telephone Set Arranged for Four Trunks or Less With Holding:** Modify the telephone set and ringer per SD-65680-01, Fig. 103.

3.29 Mount the telephone set on a desk, table, etc., and connect to 44-type connecting blocks.

3.30 Select a suitable location and mount the appropriate number of apparatus boxes. (One 105A apparatus box will hold two 1A key telephone units.)

3.31 Provide one 1A key telephone unit for each trunk arranged for holding and mount them in the 105A apparatus boxes.

3.32 Run and fasten cable between the connecting blocks and the apparatus boxes and between the apparatus boxes and the terminal.

3.33 Strip and fan the cable and terminate the conductors in accordance with the circuit drawing.

3.34 **Key Telephone Set Arranged for Five Trunks, with Holding:** Modify the telephone set and ringer per SD-65680-01, Fig. 102.

3.35 Modify the attendant key circuit per SD-65680-01, Fig. 104.

Note: To facilitate the connection of the key telephone set, run a pair of wires from the inner springs of the attendant key (A position) to the following spare punchings on the terminal strip. Terminate the ring

side on punching No. 9 on the miscellaneous (M) terminal strip. Terminate the tip side on punching No. 9 on the tie trunk (TT) terminal strip. Solder all connections. Place a tag on the fanning strip opposite punching No. 9 indicating that this work has been done.

3.36 Proceed as in 3.29 to 3.33, inclusive.

### **Hand Generator and Audible Auxiliary Signal**

3.37 When a hand generator is to be provided as the main source of ringing current, use a D-C buzzer, instead of the ringer in the attendant telephone set, as the audible auxiliary signal.

3.38 When a hand generator is to be provided as the emergency source of ringing current, use a D-C buzzer as an emergency audible auxiliary signal if required by local routines.

3.39 Mount the 105A apparatus box housing the hand generator and the D-C buzzer in a suitable location acceptable to the customer.

Note: The hand generator and D-C buzzer unit is arranged for right or left hand mounting.

3.40 Run and fasten cable between the 105A apparatus box and the P.B.X. or the terminal, whichever is more convenient.

3.41 Strip and fan the cable and terminate the conductors in accordance with the circuit drawing.

### **Off-Premises Station Lines and Tie Trunks**

3.42 Line No. 7 in the 507-A P.B.X. and Line No. 12 in the 507-B P.B.X. are equipped with line relays for use with long off-premises station lines. Where more than one line relay is required, additional line relays installed externally in a 105A apparatus box and wired to the appropriate line circuits may be provided.

3.43 Line No. 1 in the 507-A and 507-B P.B.X.'s has terminal and wiring arrangements which facilitate the connection and installation of the tie trunk unit. The ringdown tie trunk is housed in an externally installed 105 apparatus box.

Note: To avoid future transfers, do not use these circuits unless these features are required or no other circuits are available.

3.44 To restore Line No. 1 in the 507-A and 507-B P.B.X.'s for station use when tie trunks are disconnected, place and terminate straps on the cable (upper) side between the punchings on the "TT" terminal strip in accordance with the circuit drawings. (Do not replace them as originally installed on the equipment (under) side.)

### **P.B.X. Ground**

3.45 A ground strap is provided on the under side of the keyshelf from terminal No. 11 of the miscellaneous (M) terminal strip to the frame of the keyshelf. This strap was omitted from earlier manufacture of the P.B.X. Check, and if found to be omitted, provide a strap as described above. Solder the connections at both ends of the strap.

### **Fusing Battery Feeders**

3.46 When fuses per SD-65680-01, Fig. 14, are required, mount them on a 21A key telephone unit housed in a 105A apparatus box.

### **Designation Strip**

3.47 Have the central office line numbers and tie trunk number as indicated on the service order and names, as directed by the customer, typed on the designation strip.

3.48 Carefully remove the designation strip holder from the P.B.X. and attach the designation strip. Replace the holder.

## **4. INSTALLATION TESTS**

4.01 Make the tests and inspections required in connection with the installation work as covered by Section B522.231.

## **5. INSTRUCTING CUSTOMERS**

5.01 Before turning the P.B.X. over to the customer, determine that the customer is familiar with its use, and if not, demonstrate the operation of the P.B.X. or refer it to others for handling in accordance with local routines.