

## INSTALLATION

### 507A AND 507B PBX

	CONTENTS	PAGE
1.	<b>GENERAL</b> . . . . .	1
2.	<b>APPARATUS</b> . . . . .	1
3.	<b>PREPARATION FOR INSTALLATION</b> . . .	1
	Locating PBX . . . . .	1
	Locating Cross-Connecting Terminal . .	2
	Cabling and Wiring . . . . .	2
4.	<b>INSTALLATION</b> . . . . .	2
	Unpacking and Placing PBX . . . . .	2
	Placing Cross-Connecting Terminal . .	2
	Cabling and Wiring . . . . .	6
	Lettering and Numbering . . . . .	6
	Terminating Cable in PBX . . . . .	6
	Attendant's Telephone Equipment . .	7
	Designation Strip . . . . .	9
	Miscellaneous Equipment . . . . .	9
	(A) Off-Premises Station Lines . . . .	9
	(B) Tie Trunks . . . . .	9
	(C) Hand Generator and Audible Auxiliary Signal . . . . .	10
	Power Supply . . . . .	10
5.	<b>TESTS AND INSPECTIONS</b> . . . . .	11

#### 1. GENERAL

- 1.01 This section covers a method for installing the 507A and 507B PBX.
- 1.02 This section is reissued for the following reasons:

- (a) To include information on the new switchboards with die-cast aluminum chassis.
- (b) To show the termination of even count cable in cross-connecting terminals.
- (c) To add tables showing the connections for terminating cable in the 507A and 507B PBX.
- (d) To include additional information on supplying power to the PBX.
- (e) To include information for fusing battery feeders when the CO or building battery fuses are inaccessible.

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

#### 2. APPARATUS

- 2.01 *Tools* normally used for PBX installations.
- 2.02 *Materials* required for protecting the customer's premises or the equipment during installation.

#### 3. PREPARATION FOR INSTALLATION

##### Locating PBX

- 3.01 In general, both PBX are designed to be mounted on top of a piece of office furniture, such as a desk or table, without being fastened down.
- 3.02 Select a location for the PBX acceptable to the customer and with the following reservations:
- (a) Avoid locations where moisture, excessive dust, corrosive fumes, etc., are present.

## SECTION B522.225

- (b) Avoid locations where excessive vibration, due to machinery or any other cause, may affect the operation of the equipment.
- (c) Avoid locations where natural or artificial light will make it difficult for the attendant to see the signals.
- (d) Avoid locations on metal-topped desks or tables, or where the PBX is likely to be moved into contact with locally grounded metal structures, such as pipes, window frames, etc.

### Locating Cross-Connecting Terminal

**3.03** Terminals equipped with connecting blocks may be used to terminate the cable from the PBX.

*Note:* Some companies order the switchboard from the local distributing house equipped with a cable of a predetermined length and a terminal box in accordance with ED-65894-01 or ED-66097-01.

- 3.04** Select a location which will be satisfactory to the customer or building management.
- 3.05** Place the terminal in an accessible location where good lighting and safe working space exists, and where the cover of the box can be fully opened.
- 3.06** Avoid locating the terminal near a window where the box may become wet or in locations where it may become excessively dirty.
- 3.07** Locations near electrical circuits, switches, doors, hoists, etc., should be avoided.

### Cabling and Wiring

**3.08** Discuss with the customer the proposed route and methods of attaching cables and wiring to building walls, baseboards, etc.

**3.09** Permission should be obtained from the property owner or his agent when it is necessary to make attachments to surfaces such as wood panel, glazed tile, marble, etc.

**3.10** When conduit for installation is to be provided, close cooperation is required with the customer or his agent in order that conduits of suitable size and location will be installed.

## 4. INSTALLATION

### Unpacking and Placing PBX

**4.01** Care should be exercised when handling the PBX to prevent personal injury and damage to the PBX. The PBX is packed in a cardboard carton that is especially designed to prevent damage to the PBX.

*Note:* These cartons, whenever available, should be re-used to pack the PBX when returning it to the distributing house or storeroom.

**4.02** Spread any available protective material. Remove the PBX from the shipping carton and place it on the material. Remove the four screws from the wooden base plate which is secured to the PBX.

**4.03** Place the PBX on the desk, table or other location selected.

### Placing Cross-Connecting Terminal

**4.04** Install cross-connecting terminal box and place connecting block and adapter in terminal. See Figs. 1, 2, and 3 for typical arrangement.

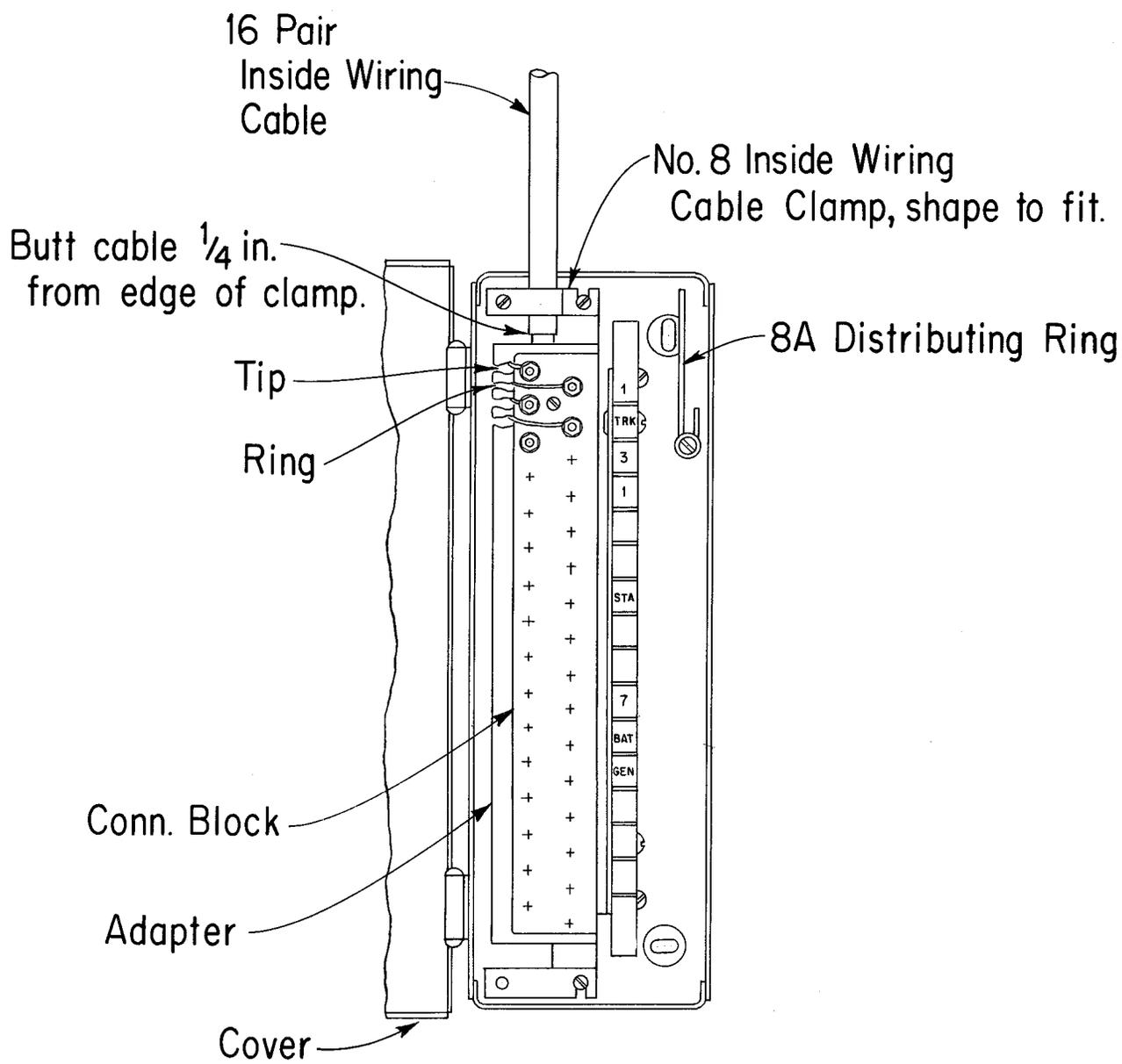


Fig. 1 — Typical Arrangement for 507A PBX with Prefabricated Sheet Metal or Die-Cast Aluminum Chassis

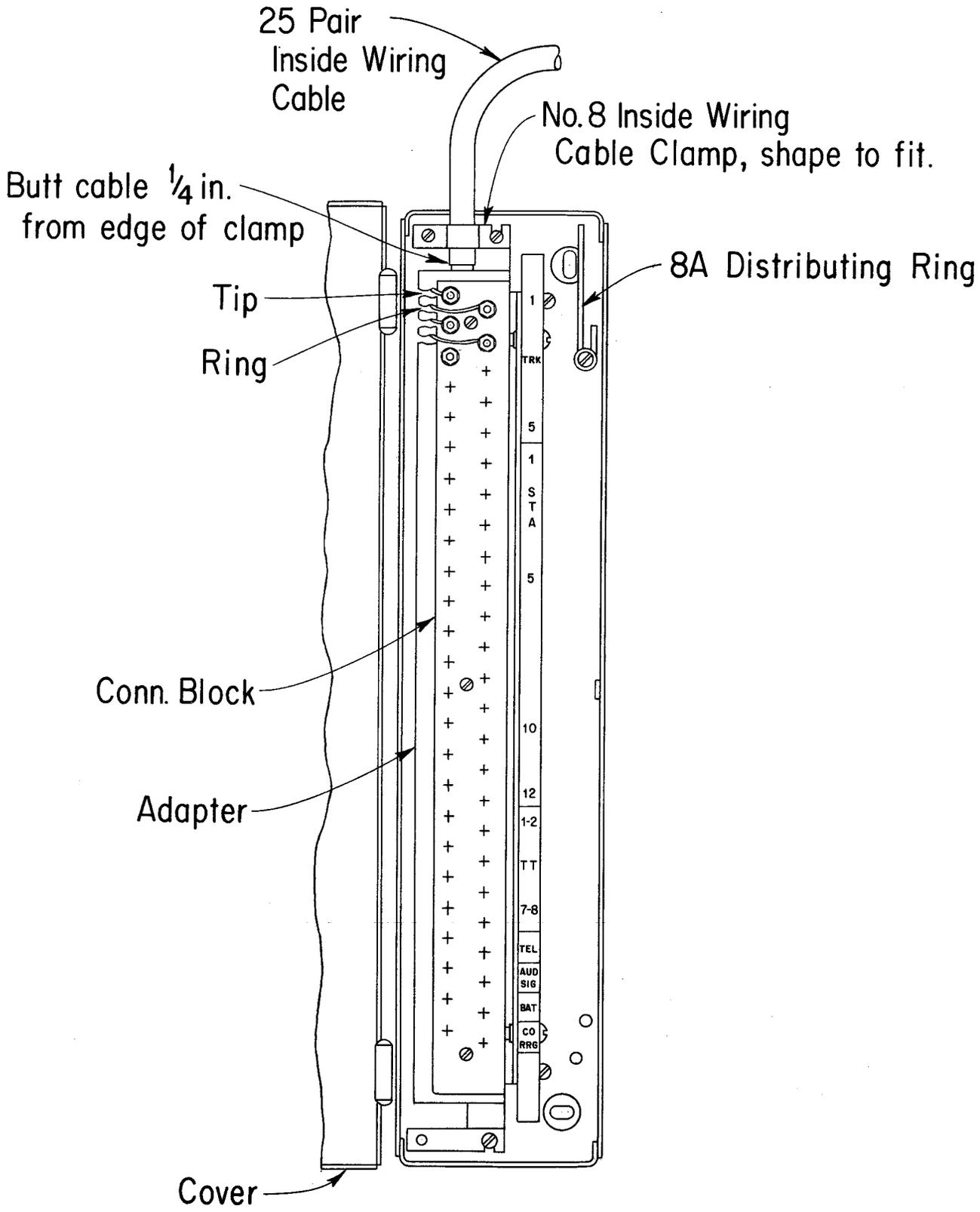
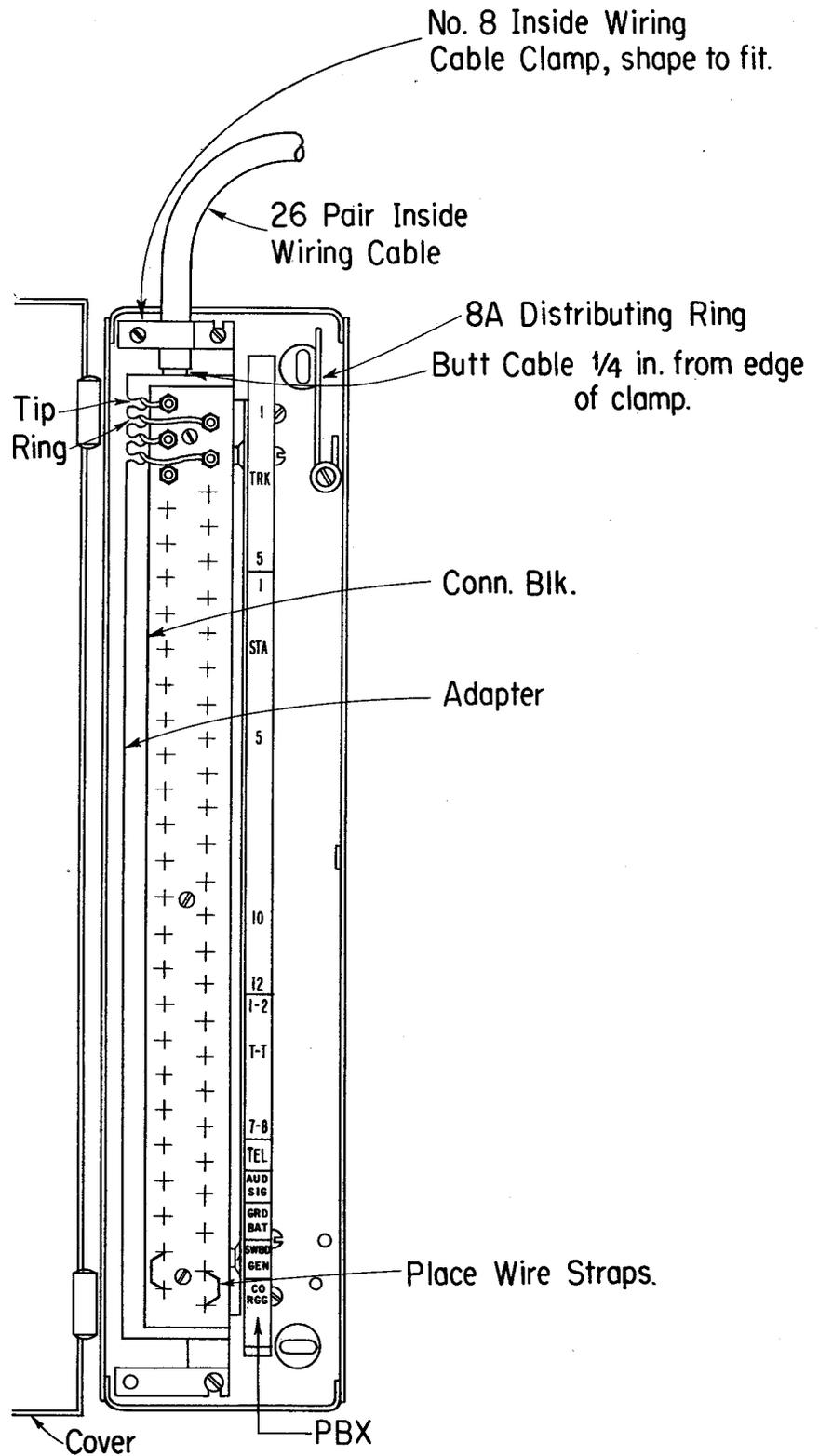


Fig. 2—Typical Arrangement for 507B PBX with Prefabricated Sheet Metal or Die-Cast Chassis Using 25-Pair Cable



**Fig. 3 – Typical Arrangement for 507B PBX with Prefabricated Sheet Metal Chassis Using 26-Pair Cable (Manufacture Discontinued)**

## SECTION B522.225

### Cabling and Wiring

- 4.05** Run and fasten the cable in accordance with instructions as covered in the Bell System Practices.
- 4.06** Strip the end of the cable to be placed in the cross-connecting terminal and butt as shown in Figs. 1, 2, and 3.
- 4.07** Fan out and connect the cable to the connecting block pair-to-pair. (Pair 1 of cable to pair 1 of connecting block, etc.)

### Lettering and Numbering

- 4.08** Letter and number fanning strips, using 3/16-inch rubber stamps, as shown in Figs. 1, 2, and 3. When connecting blocks are used which have the ring terminal positioned above and to the right of the tip terminal, transpose the designations for single leads.

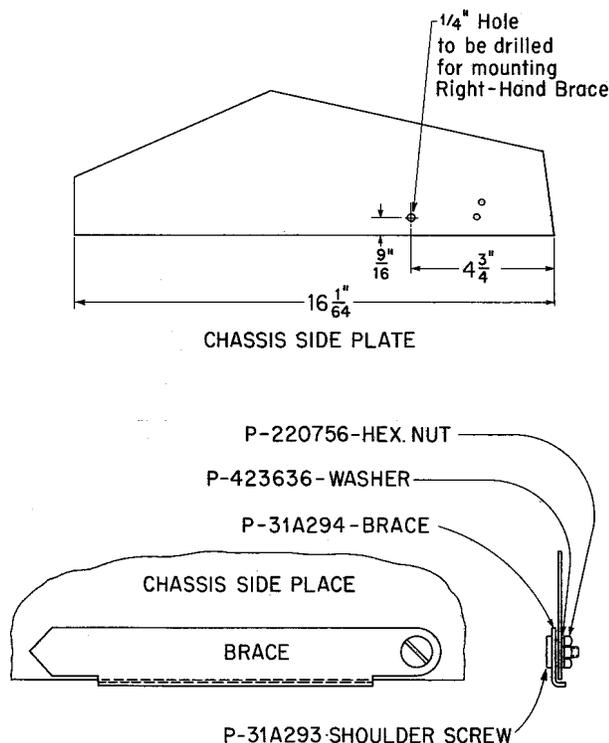
### Terminating Cable in PBX

- 4.09** To remove the cover of the PBX, pull up the plug-in designation strip holder and loosen the two hold-down screws located under the strip.
- 4.10** 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. The finish of the cover should not be marred. Place it where it will be protected during the installation.
- 4.11** Loosen the two "turn-spring" screws located on the front of the chassis.
- 4.12** *To raise* the keyshelf of the PBX, approaching it from the front, place the fingers of the left hand in the hand hole in the front of the chassis. Take a firm grip and raise the keyshelf. Do not release the grasp until the keyshelf is safely locked in position and the movable end of the right-hand supplementary keyshelf brace is placed between the side flange of the base casting and the reinforcing rib which holds the right rubber switchboard foot.

**Note:** When the PBX is approached from the rear, the position of right and left hand as described in 4.12 is reversed.

- 4.13** The first 507-type PBX to be manufactured were not provided with a supplementary keyshelf brace on the right side of the chassis. If the PBX is not equipped with a brace, a P-31A294 brace should be installed in the field. Drill a hole in the chassis and install the required parts. The location and size of this hole and the assembly of parts are shown in Fig. 4. The material to modify one switchboard is as follows:

- 1 — P-31A294 Brace
- 1 — P-31A293 Shoulder Screw
- 1 — P-220756 Hex Nut
- 1 — P-423636 Washer

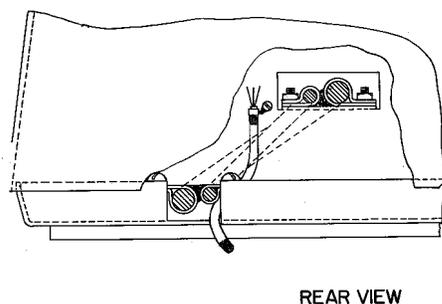
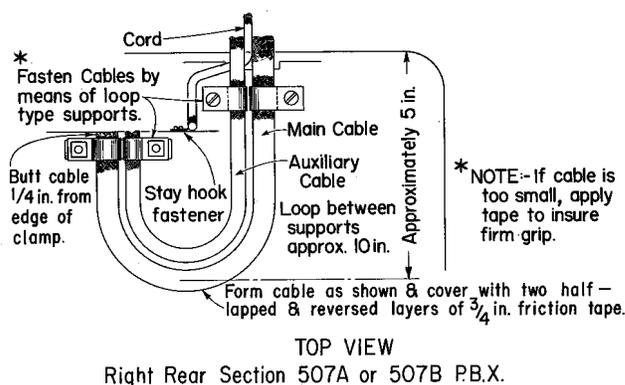


**Fig. 4 — Installation and Assembly of Supplementary Keyshelf Brace for 507-type PBX Not Provided with Two Keyshelf Braces**

**4.14 To Lower:** 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 hand until the keyshelf is safely resting on the base.

**Note:** Raising the keyshelf slightly to release the pawl on the left-hand brace will automatically release the right-hand supplementary brace.

**4.15** Strip, butt, and tape cable and arrange in PBX. See Fig. 5. Leave sufficient slack in cable to allow for movement of the PBX when it is placed on a desk, table or other moveable support.



**Fig. 5 — Typical Cabling and Cording Arrangement for 507-type PBX with Prefabricated Sheet Metal or Die-Cast Aluminum Chassis**

**4.16** Connect cable to terminal strips in PBX as follows:

(a) For 507A PBX with prefabricated sheet metal or die-cast aluminum chassis use Table A.

(b) For 507B PBX with prefabricated sheet metal chassis use Table B.

(c) For 507B PBX with die-cast aluminum chassis use Table C.

**Note:** The column in the tables headed "Terminal Box Design" shows the stenciling as it should appear on the fanning strip in the cross-connecting terminal and has been included in the tables for reference.

**Caution:** Do not connect battery or ringing feeders through to the PBX until the work operations covered in 4.39 and 4.40 are completed.

TABLE A				
Terminations for 507A PBX Prefabricated Sheet Metal and Die-Cast Aluminum Chassis				
TS IN REAR OF PBX			CABLE PAIR	TERMINAL BOX DESIG
DESIG	STRIP	PCHG		
TRK 1-3	T	1-3	1T-3T	1
	R	1-3	1R-3R	3
STA 1-7	T	4-11	4T-10T	1
	R	4-11	4R-10R	7
GRD B	M	11	11T	BAT
	M	10	11R	
G ±	M	6	12T	GEN
	M	8	12R	

**4.17 PBX Frame Ground:** A ground strap is provided on the underside of the keyshelf from terminal No. 11 of the miscellaneous (TT) terminal strip to the frame of the keyshelf. This strap was omitted from earlier manufacture of the PBX. Check and, if found to be omitted, provide this strap. Solder the connections.

#### Attendant's Telephone Equipment

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

**4.19** Enter the cord from the telephone set through the hole in the rear of the PBX and fasten the stay hook to the stay hook fastener, as shown in Fig. 5. Fan the cord conductors and terminate as indicated by the circuit drawings.

TABLE B					
Terminations for 507B PBX Prefabricated Sheet Metal Chassis					
TS IN REAR OF PBX			CABLE PAIR	TERMINAL BOX DESIG	NOTES
DESIG	STRIP	PCHG			
TRK 1-5	T1	1-5	1T-5T	1 TRK 5	
	R1	1-5	1R-5R		
STA 1-6	T1	6-11	6T-11T	1 STA	
	R1	6-11	6R-11R		
STA 7-12	T2	1-6	12T-17T	12	
	R2	1-6	12R-17R		
	TT	1-8	18T-21T 18R-21R	1-2 TT 7-8	1
TEL	T2	T	22T	TEL	
	R2	R	22R		
B1 R—	M	1	23T	AUD SIG	
	M	2	23R		
GRD B	M	11	24T	BAT	
	M	10	24R		
G ±	M	6	25T	CO RRG	2
	M	8	25R		

SUPPLEMENT					
	M	7	25T	SWBD	1
	M	3	25R	GEN	
G ±	M	6	26T	CO RRG	
	M	8	26R		

**Notes:**

- No designation on terminal strip.
- For 507B PBX which have been installed using 26-pair cable see the SUPPLEMENT for terminations of 25th and 26th pairs.

TABLE C					
Terminations for 507B PBX Die-Cast Aluminum Chassis					
TS IN REAR OF PBX			CABLE PAIR	TERMINAL BOX DESIG	NOTES
DESIG	STRIP	PCHG			
TRK 1-5	T	1-5	1T-5T	1 TRK 5	
	R	1-5	1R-5R		
STA 1-12	T	7-12	6T-17T	1 STA 12	
	R	7-12	6R-17R		
	TT	1-8	18T-21T 18R-21R	1-2 TT 7-8	1
TEL	T	T	22T	TEL	
	R	R	22R		
B1 R	M	1	23T	AUD SIG	
	M	2	23R		
GRD B	M	11	24T	BAT	
	M	10	24R		
G ±	M	6	25T	CO RRG	
	M	8	25R		

**Note:**

- No designation on terminal strip.

**4.20 Key Telephone Set with Buzzer Cutoff and Automatic Restoration:** Modify the telephone and connect in accordance with SD-65736-01.

**4.21 Key Telephone Set with 6 Pickup Keys:** Modify the telephone set and connect in accordance with SD-65680-01.

**Note:** In certain cases it is necessary to connect a circuit of the key telephone set to the inner springs of the attendant key (A position) of the PBX. To facilitate this connection provide straps in the PBX as follows:

- (a) Place a wire from the ring inner spring of the attendant key (A position) to punching 9 on the M terminal strip.
- (b) Place a wire from the tip inner spring of the attendant key (A position) to punching 9 on the TT terminal strip.
- (c) Solder all connections.
- (d) Place a tag on the fanning strips opposite punching 9 indicating that this work has been done.

**4.22 Head Telephone Set:** When a head telephone set is required a dial mounting, dial, telephone jacks, buzzer or ringer, key telephone units, and a 105-type apparatus box for mounting the key telephone units must be ordered. Install in accordance with SD-65736-01.

#### Designation Strip

**4.23** Have the central office trunk numbers, tie trunk number, and station line numbers as indicated on the service order, typed on the designation strip. Any names, if indicated by the customer, should be typed on the designation strip.

**4.24** Attach the designation strip to the designation strip holder and place on the PBX.

#### Miscellaneous Equipment

##### (A) Off-Premises Station Lines

**4.25** Station line No. 7 in the 507A PBX and station line No. 12 in the 507B PBX are

equipped with line relays for use with off-premises station lines. Where more than one line relay is required, additional line relays installed externally in a 105-type apparatus box and wired to the appropriate line circuits may be provided.

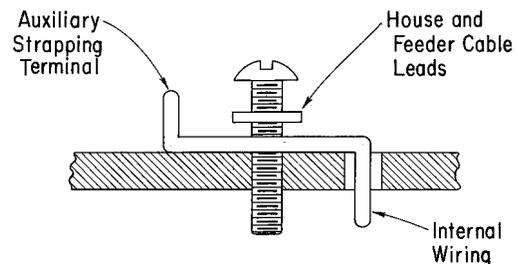
##### (B) Tie Trunks

**4.26** Station line No. 1 in the 507A and 507B PBX has terminal and wiring arrangements which facilitate the connection and installation of automatic and ringdown tie trunks. When a tie trunk is to be provided, remove straps on the equipment (under) side of terminal strip TT per SD-65680-01.

**Note:** To avoid future station line transfers, do not use these circuits unless a tie trunk or long line relay is to be provided or no other station line circuits are available.

**4.27** To restore line No. 1 in the 507A and 507B PBX 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.

**Note:** In the 507-type PBX with die-cast aluminum chassis, each terminal of the terminal strips is provided with an auxiliary terminal for variable strapping as shown in Fig. 6.



**Fig. 6 — Section of Terminal Strip from 507-type PBX with Die-Cast Aluminum Chassis**

**SECTION B522.225**

**4.28** Additional tie trunks may be terminated on any station key or trunk key location. Modify the keys per SD-65736-01.

**4.29** When it is necessary to terminate a tie trunk in a trunk key location, the trunk key shall be replaced with a station key modified per SD-65736-01.

*Note:* It will also be necessary to relocate electrically the supervisory signal circuit per SD-65736-01.

**4.30** The 2-way ringdown tie trunk is housed in an externally mounted 105-type apparatus box.

**4.31** The 2-way automatic tie trunk is housed in two 105-type apparatus boxes externally mounted one above the other.

**(C) Hand Generator and Audible Auxiliary Signal**

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

**4.33** When a hand generator is to be provided as the emergency source of ringing current, use a dc buzzer as an emergency audible auxiliary signal if required by local instructions.

**4.34** Mount the 105-type apparatus box housing the hand generator and the dc buzzer in a suitable location acceptable to the customer.

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

**4.35** Run and fasten wiring between the 105-type apparatus box and the PBX.

**4.36** Terminate the conductors in accordance with SD-65680-01.

**Power Supply**

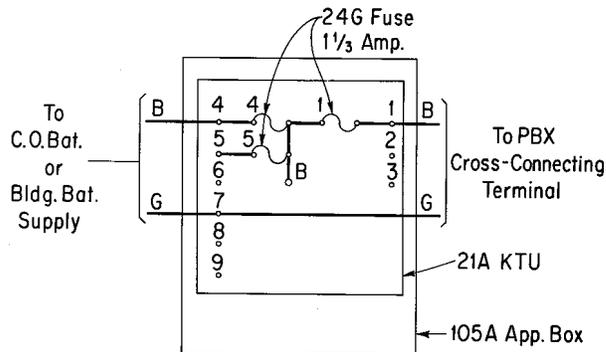
**4.37** The type of power plant or power supply used will depend upon local instructions. Table D lists the sources from which power may be obtained.

TABLE D				
BATTERY		GENERATOR		NOTES
TYPE	DESCRIPTION	TYPE	DESCRIPTION	
101A	Battery Reserve	107-Type	Freq. Gen.	1
101G	Batteryless	KS-5585	Static Gen.	
101J	Batteryless			
Central Office	Supplied over cable pairs	Central Office	Supplied over cable pairs	2
Building Battery	Supplied over local cable pairs			

**Notes:**

1. Do not use a 107-type frequency generator with the PBX if tie trunks are to be provided.
2. When battery and ground are supplied from the central office over cable pairs, to minimize noise effects on PBX stations and to prevent possible electrolysis damage to sheath cables or underground pipes, use a metallic return for any grounds. A ground-return feeder arrangement should not be used unless authorized by specific local instructions. If battery and ground are supplied from a building battery, a cable sheath return ground may be used with grounded building battery feeders.

**4.38 Fusing Battery Feeders:** The CO battery or building battery fuses, as normally provided, are sufficient for fusing the battery feeders. Where these fuses are not readily accessible at all times, additional fuses as per Fig. 7 should be provided and mounted on a 21A key telephone unit housed in a 105-type apparatus box.



**Fig. 7 — Fusing for 507-type PBX When CO or Building Battery Fuses Are Inaccessible**

**4.39 Strapping Battery Feeders at Terminal:**

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

**4.40 Checking Battery and Ringing Feeders:**

Check the battery feeders and ringing feeders for correct polarity before connecting them through to the PBX.

**4.41 Connecting Battery and Ringing Supply:**

Connect wiring from battery and generator sources in Cross-Connecting Terminal as shown in Fig. 1, 2, or 3 and per TABLE A, B, or C.

**5. TESTS AND INSPECTIONS**

**5.01** Make the tests and inspections required as covered in Section B522.231.