INSTALLATION

755A PBX

CONTENTS

CONTENTS (Cont'd)

1. GENERAL

1.01 This section covers general requirements and methods to be followed in preparation and installation of the 755A PBX.

1.02 This section, replacing Section B556.015, has been reissued for the following reasons:

(a) To incorporate information previously covered in Section B556.014, on the preparation for installing the 755A PBX which has been cancelled.

(b) To provide a detailed method for installing ac power to supply lamps in illuminated key telephone sets.

(c) To cover the use of even count cable.

(d) To revise the information on supplying power to the PBX.

(e) To bring the section up to date generally.

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

1.03 The use of illuminated key telephone sets has increased the power demand to a point where, in some installations, the PBX battery is not adequate. A PBX using a local building battery for power will not have this problem.

1.04 When the PBX battery is found to be inadequate in providing power for operating both the PBX and trunk lamps, provide transformers and control equipment to operate trunk lamps to relieve excessive drain on the battery.

1.05 Generally new installations having up to 40 trunk lamps, or larger installations with an expected low to medium traffic volume, will have sufficient PBX battery reserve to supply power to the lamps.

1.06 New installations of more than 40 trunk lamps or with an expected high traffic volume may be provided with transformers to furnish power to the lamps to supplement the PBX battery.

1.07 When transformers are being provided as a source of power for the lamps and it is known that frequent service interruptions resulting from commercial power failure will be experienced or where even infrequent service interruptions resulting from commercial power failure cannot be tolerated by the customer, it is recommended that primary appearances of trunk lamps be supplied power from PBX battery.

1.08 Throughout this section common work operations such as cabling, wiring, mounting of equipment, etc, should be performed in accordance with the Bell System Practices applicable. Consult individual series indexes for specific section numbers of work operations desired.

1.09 Following is a list of circuit drawings pertaining to the PBX. Detailed circuit description will be found in associated CD sheets. Drawings for optional equipment that may be required must be ordered separately.

Title	Drawing
Central Office Trunks	SD-66503-01
Line, Line Switch, and Call Allotter	SD-66504-01
Tone, Ringing, Alarm, and Common Timing Circuit	SD-66506-01
Station Circuit	*SD-66507-01
Tie Trunk — Outgoing Dial Selected, Incoming Dial Repeating	*SD-66600-01
Tie Trunk — 2-way Dial Repeating	*SD-66601-01
Tie Trunk — 2-way Ringdown Without Lamps	*SD-66605-01
Tie Trunk — 2-way Ringdown With Lamps	*SD-66606-01
Link and Link Allotter	SD-66611-01
Recorded Telephone Dictation Trunk	*SD-65788-01
Charge and Discharge Circuit	SD-80588-01
Ringing Circuit — KS-5523 Ringing Machine	*SD-80750-01

* Drawings not furnished with equipment.

2. APPARATUS

Tools

2.01 In addition to the standard tools necessary for PBX installation work the following tools or their equivalent are required:

R-2512 Wrench (adjustable) or equivalent.

Test Receiver, No. 716C Receiver attached to a W2AB Cord equipped with two No. 360A Tools (No. 2W21A Cord), one KS-6278 Connecting Clip, and one No. 411A (Test Pick) Tool.

Cords, test, Weston Electrical Instrument Co. Nos. D-79650 (red, 6 ft. with pick), D-79651 (black, 6 ft. with pick), and two 168023 (red, 10 ft. with clip).

Gauges

2.02 Volt-Ammeter, DC, Weston Model No. 281, 60-30-3 volts and 15-3-0.3 amperes or an equivalent meter.

Material

2.03 Any material which might be required for protecting the customer's premises or PBX during installation shall be provided.

2.04 Petrolatum, to protect the hands when handling batteries.

2.05 The following touch-up colors are to be used when necessary:

(a) ***No. 10635 satin gloss enamel — Martin Senour Paint Co., Chicago, Ill.:*** For the outside surfaces of the metal casing.

(b) ***KS-8662 gray enamel:*** For discolored, faded or damaged surfaces on the inside.

(c) ***WL-58751 acid resistant light gray enamel:*** For the battery trays.

3. PREPARATION

Planning

3.01 Consider the surroundings of the quarters in which the PBX, associated equipment, and cross-connecting terminal (if required) are to be installed; particularly where cable splicing, etc, is necessary.

3.02 Assist the customer in selecting locations for the PBX, telephone sets, extension bells, control keys for keyless stations, trunk emergency keys, lamp indicators, etc.

3.03 When lamp indicators are to be provided, care should be taken to select locations for indicators where visibility of signals will not be adversely affected by natural or artificial light.

3.04 When conduit for installations 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.

3.05 When necessary, discuss with the customer proposed route and methods of attaching cables and wiring to building walls, baseboards, etc.

3.06 Permission shall be obtained from the property owner or his agent when it is necessary to make attachments to surfaces such as wood panels, glazed tile, marble, etc.

3.07 The customer shall supply suitable 110-120V, 50-60-cycle ac power wiring and convenience outlets not controlled by a switch when an ac power source for equipment is required.

Selecting Location for PBX

3.08 Select a location that will meet with the customer's approval and the following general requirements:

(a) Floor strong enough to support the PBX, which weighs approximately 450 pounds when fully equipped.

(b) Reasonably well lighted.

(c) Adequate ventilation.

(d) Accessible without difficulty. If location is in an area which will normally be locked, suitable arrangements for access for maintenance purposes should be made with the customer.

(e) Dry and reasonably clean.

(f) As near as possible to the wire center.

3.09 Avoid locations:

(a) Near windows, skylights, etc, where rain might enter.

(b) Near sweating water pipes, steam pipes, sprinkler systems, etc.

(c) Subject to extreme heat or cold.

(d) Near a hoist, stairway, trap door, pit, moving machinery, etc.

(e) In passageways used by trucks or other locations where traffic is heavy.

(f) Where oil mist from machinery, dust, corrosive fumes, exhaust from steam vents, etc, are present.

(g) Subject to excessive vibration due to operation of machinery or other causes.

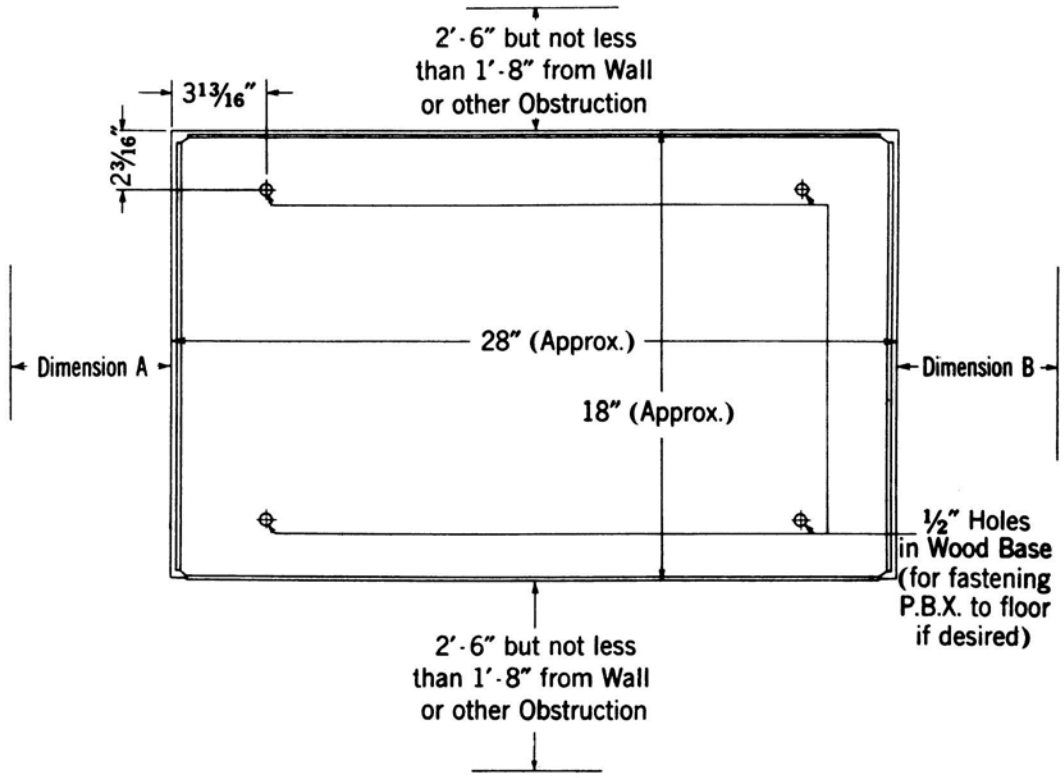
(h) Requiring use of a ladder when performing work in the terminal.

3.10 Clearance for bringing the PBX through doorways, passageways, etc, is essential. Approximate dimensions of the PBX, when crated, are: height 80 inches, width 33 inches, depth 24 inches; and, when uncrated, the approximate dimensions are: height 72 inches, width 24 inches, depth 18 inches.

3.11 The PBX cabinet requires a floor space of not less than four feet wide and five feet deep to permit removal of front and rear casing and provide easy access to the equipment. A minimum ceiling height of six feet one inch is required. See Fig. 1.

eyebolts are provided in the top of the PBX to assist in handling when the packing case has been removed. These eyebolts may be removed from the holes in the top of the PBX and screwed into holes provided in the side of the framework when such a location facilitates handling.

Note: On some PBX the eyebolts may be removed after the PBX is finally located and stored by inserting them in threaded holes provided in the lower compartment of the PBX. See Fig. 11. After removal of the eyebolts fill the holes with No. 33B apparatus blanks (rated manufacture discontinued) or four 1/2-13 x 1" RHM screws.



Dimension A may be a minimum of 3" from wall or other obstruction if dimension B is at least 1' 8" or vice versa.

Fig. 1 — Floor Plan

Transporting PBX

3.12 Handle the PBX in the packing case wherever possible. When it is necessary to handle the PBX unpacked, do not attempt to lift by the handles on the casings since these are not designed to support the weight of the PBX. Two

3.13 Use a roller dolly whenever possible to avoid carrying. Due to the height of the PBX care should be exercised when handling it upright to avoid tipping it over. The strength of the packing case is sufficient so that the packed PBX can be laid on its narrow side and moved by means of a roller dolly.

3.14 When necessary to carry the PBX, particularly up or down stairs, take precautions to avoid personal injury as the PBX weighs approximately 500 pounds in the packing case.

3.15 Handle PBX carefully to avoid injury to equipment such as might result from heavy jarring. Also take precautions not to damage the walls or floors of the building while moving the PBX.

Cross-Connecting Terminals

3.16 Binding post chambers, appropriate connecting blocks or house terminals shall be used to terminate cables from the PBX.

3.17 On installations requiring a cross-connecting terminal box, locate cable terminal sections generally in accordance with 3.08.

Selecting Cables

3.18 Use Section 461-450-101 as a guide in selecting type of cable best suited for a particular installation.

3.19 Where lamp indicators and/or illuminated key telephone sets receive their power from battery, the ultimate number of cable pairs required between PBX cabinet and cross-connecing terminal are 200 and 125 pairs for 20- and 10-line installations respectively.

3.20 Where lamp indicators and illuminated key telephone sets receive their power from transformers and the associated key telephone units are located at or near the cross-connecting terminal or where lamp indicators receive their power direct from the PBX battery and the illuminated key telephone sets receive their power from transformers, the ultimate cable requirements between PBX cabinet and cross-connecting terminals are 150 and 100 pairs for 20- and 10-line installations respectively. In addition, a 16-pair cable is required between associated key telephone units and cross-connecting terminal.

Locating Power Supply for Trunk Lamps

3.21 When the source of power for illuminated key telephone sets is dc, a 290-ohm resistance is required for each lamp to drop the PBX battery voltage to approximately 10 volts. Resistors for 100 lamps are provided on a mounting plate (J58819M-L1 Resistance Unit) and are to be mounted in the PBX cabinet.

3.22 When the source of power for the lamps is to be supplied from transformers, locate associated key telephone units in PBX terminal, an apparatus cabinet, or apparatus boxes. Locate transformers and key telephone units as close as practicable to the cross-connecting terminal and ac service.

Locating Copper Oxide Rectifier

3.23 Refer to Division Index 169-000-000 when a rectifier is to be provided for PBX battery charging. Refer to Fig. 2 or 6 for a typical installation with a J86205B, L3 or L4 rectifier.

Locating Ringing Generator

3.24 A KS-5585, or equivalent, static ringing generator may be provided to furnish 20-cycle ringing current in lieu of CO ringing when there is a shortage of cable facilities or no CO ringing is available. Locate the generator as close as practicable to PBX cabinet or cross-connecting terminal and ac service. See Fig. 2 or 6, and Division Index 163-000-000.

Locating Miscellaneous Equipment

3.25 Optional equipment such as tie trunks, etc, may be mounted in the PBX cabinet if space is available, otherwise mount equipment units in a separate apparatus cabinet located near the PBX.

3.26 When tie-trunk equipment is to be installed in the PBX, collars should be placed on the mounting screws to recess the mounting plate sufficiently to permit proper closing of the cabinet. The collars are furnished with the trunk equipment.

4. REQUIREMENTS AND METHODS

Unpacking and Placing PBX in Position

4.01 Remove the packing case, leaving only the skids under the PBX.

4.02 Place PBX in location selected which should, in general, be in accordance with information in the job preparations.

4.03 Remove the 4 lag screws running through the base to the skids and remove skids by tilting PBX slightly. Do not remove wooden base provided to insulate the PBX from ground.

4.04 Check by eye to see that the PBX stands approximately level. This can most readily be done by aligning vertical parts of the PBX framework (with casings removed) with other vertical objects on the premises. Shim the base with small strips of wood if necessary.

4.05 Holes are provided in the base to fasten the PBX to the floor, if desired. Use fasteners as required for the particular type of floor.

Placing Cross-Connecting Terminal

4.06 Place terminal box, when required, in the location selected, which should, in general, be in accordance with information in the job preparations.

4.07 Binding post chambers or connecting blocks may be placed in new or, if space has been provided, in an existing terminal box.

4.08 ***An arrangement for dc lamp supply (20-line PBX)*** using binding post chambers or connecting blocks, whose binding posts are arranged as those in binding post chambers, is shown in Figs. 2 and 3. Refer to Table A for connections.

4.09 ***Arrangements for dc lamp supply (20-line and 10-line PBX)*** using connecting blocks are shown in Figs. 4 and 5, respectively. Refer to Table A for connections.

4.10 ***An arrangement for ac lamp supply (20-line PBX)*** using a combination of binding post chambers and connecting blocks is shown in Figs. 6, 7, and 8. Refer to Table A, (cable pairs 1 to 150), and Table B for connections. Provide one 17B-KTU per trunk and wire as shown in Figs. 8, 9, and Table B.

4.11 In addition to 4.10, to provide a primary appearance of dc lamps, if they are required (see Paragraph 1.07) refer to Fig. 8 and Table B. Use 22-KTU's (one unit will provide for three trunks), and refer to Figs. 6, 8, and Table B.

4.12 ***When an existing installation is modified to use illuminated key telephone sets refer to 4.08 through 4.11.***

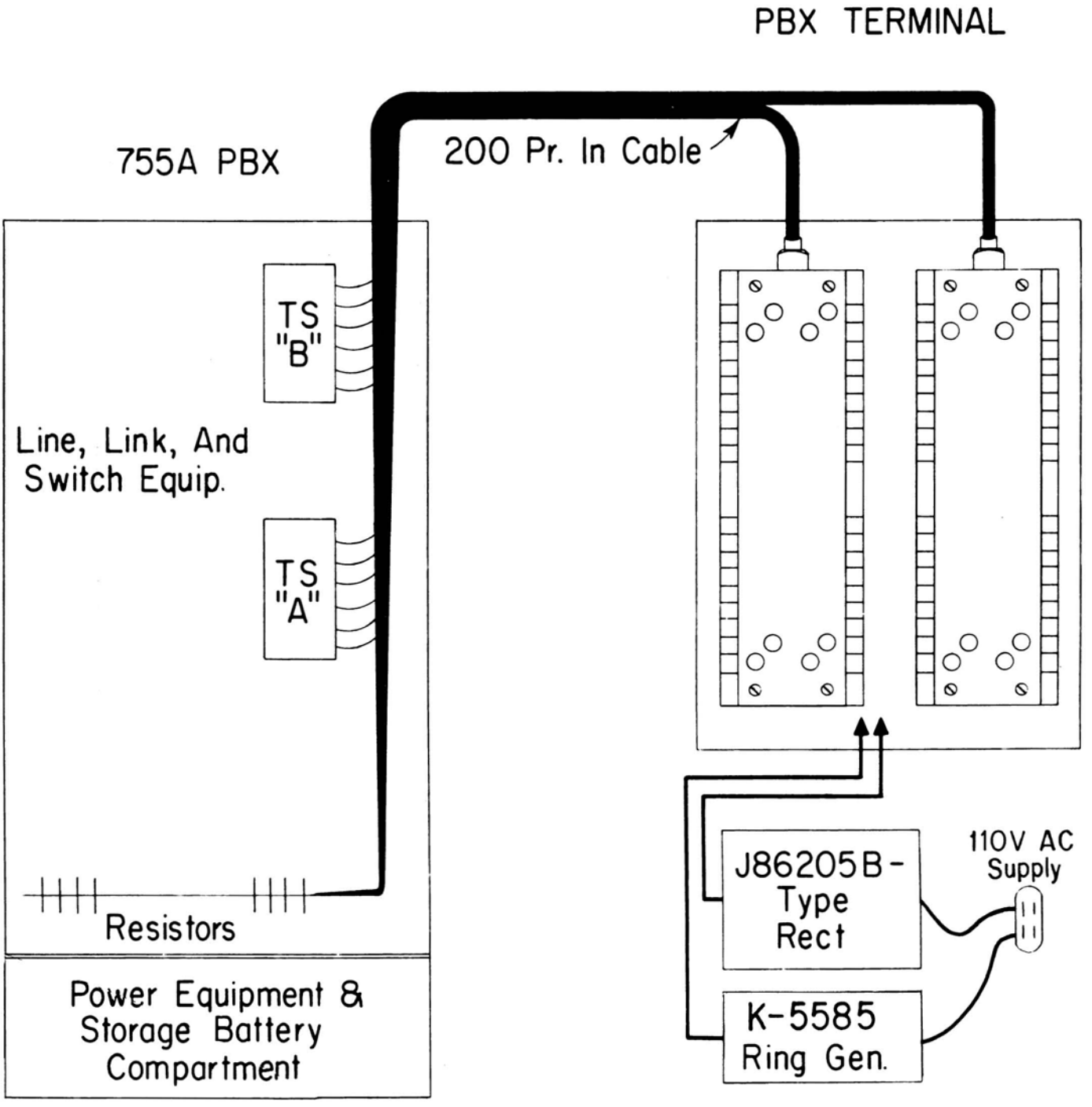
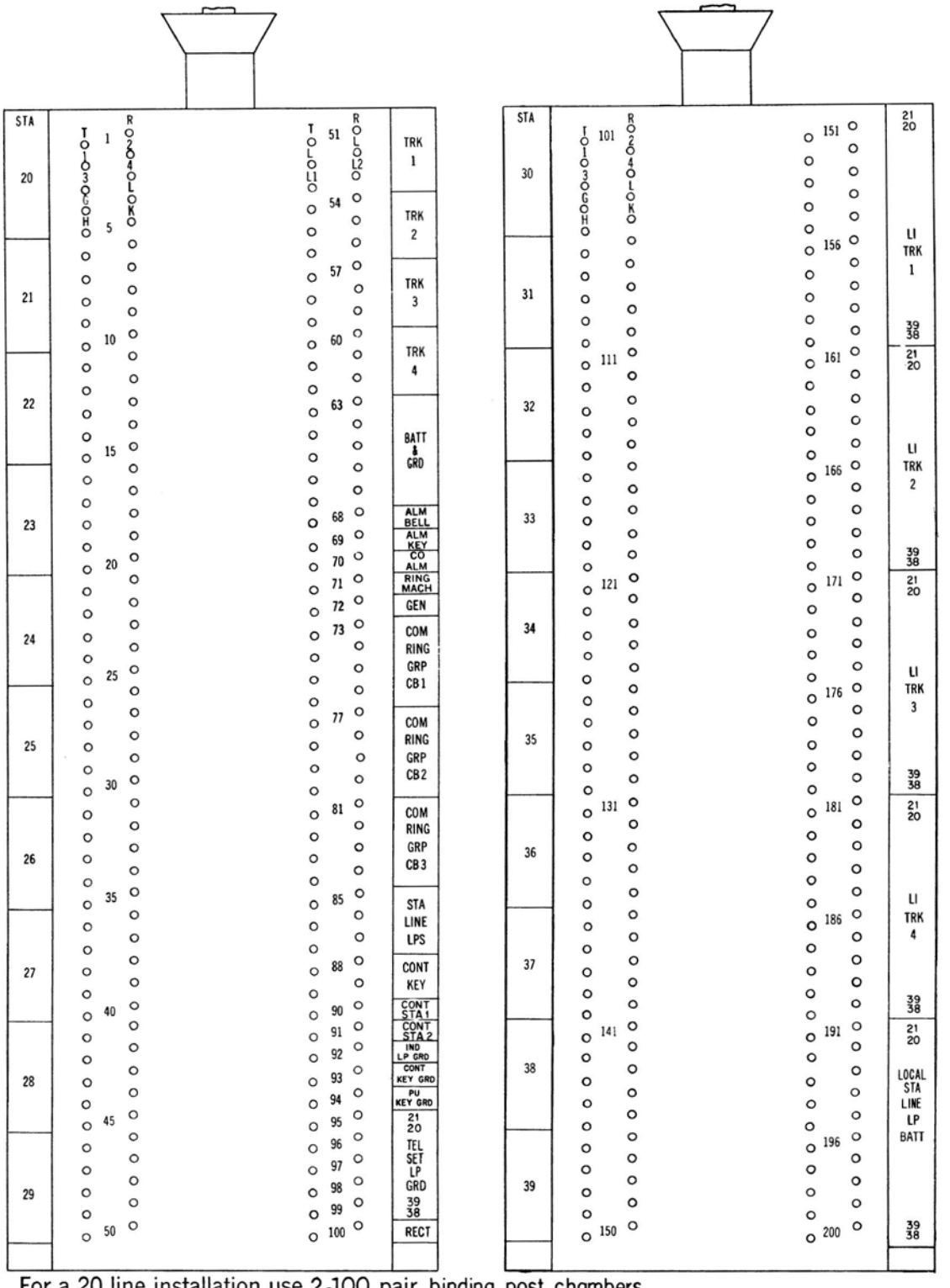


Fig. 2 — Typical Arrangement of 20-Line PBX — Lamp Power from PBX



For a 20 line installation use 2-100 pair binding post chambers.
For a 10 line installation use a 100 pair and a 50 pair binding post chamber.
Terminate station lines as shown for stations 20 to 29.
Pair numbers not to be stamped.

Fig. 3 — Arrangement of Binding Post Chambers — Lamp Power from PBX

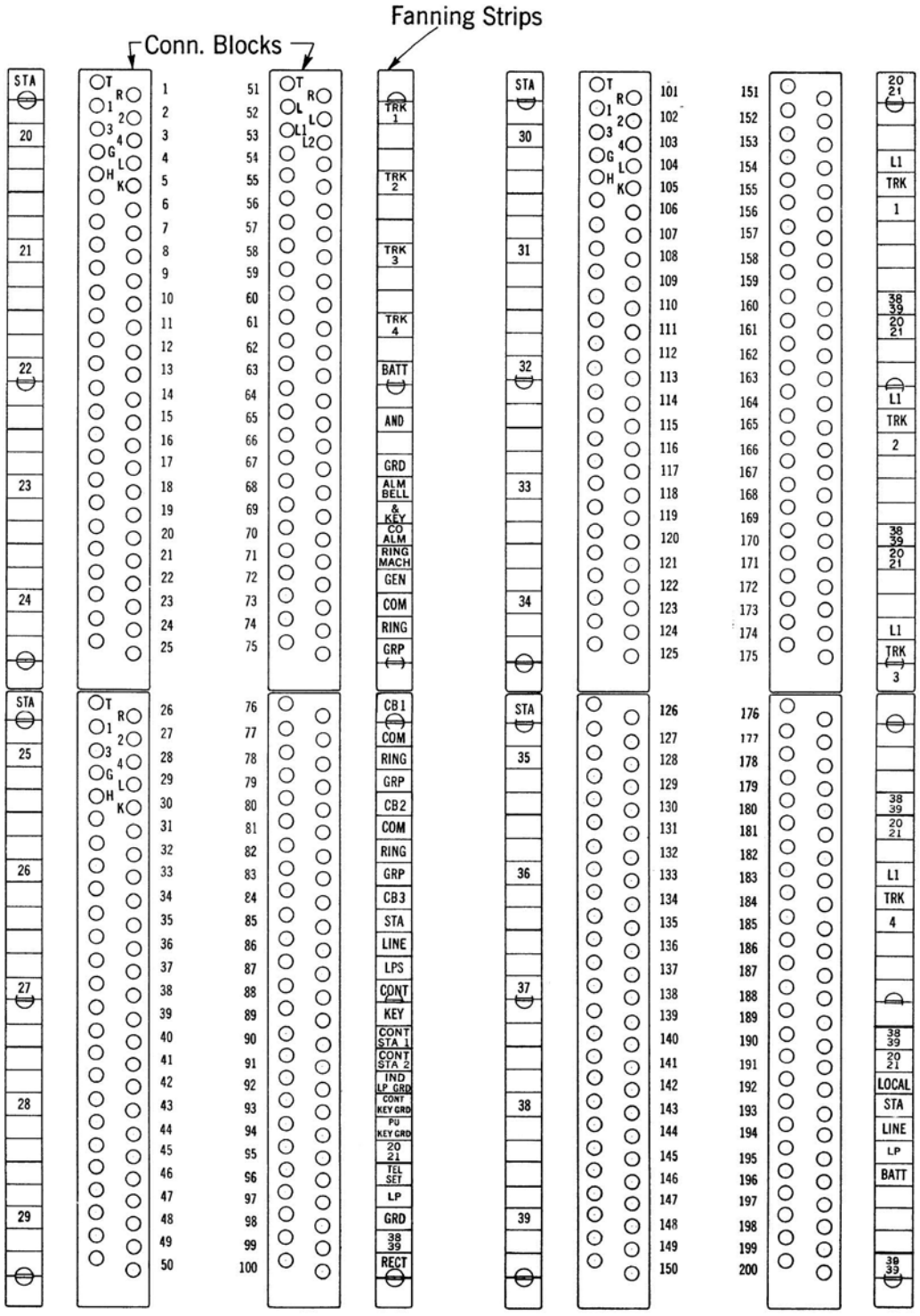


Fig. 4 — Arrangement of Connecting Blocks — 20-Line Size — Lamp Power from PBX

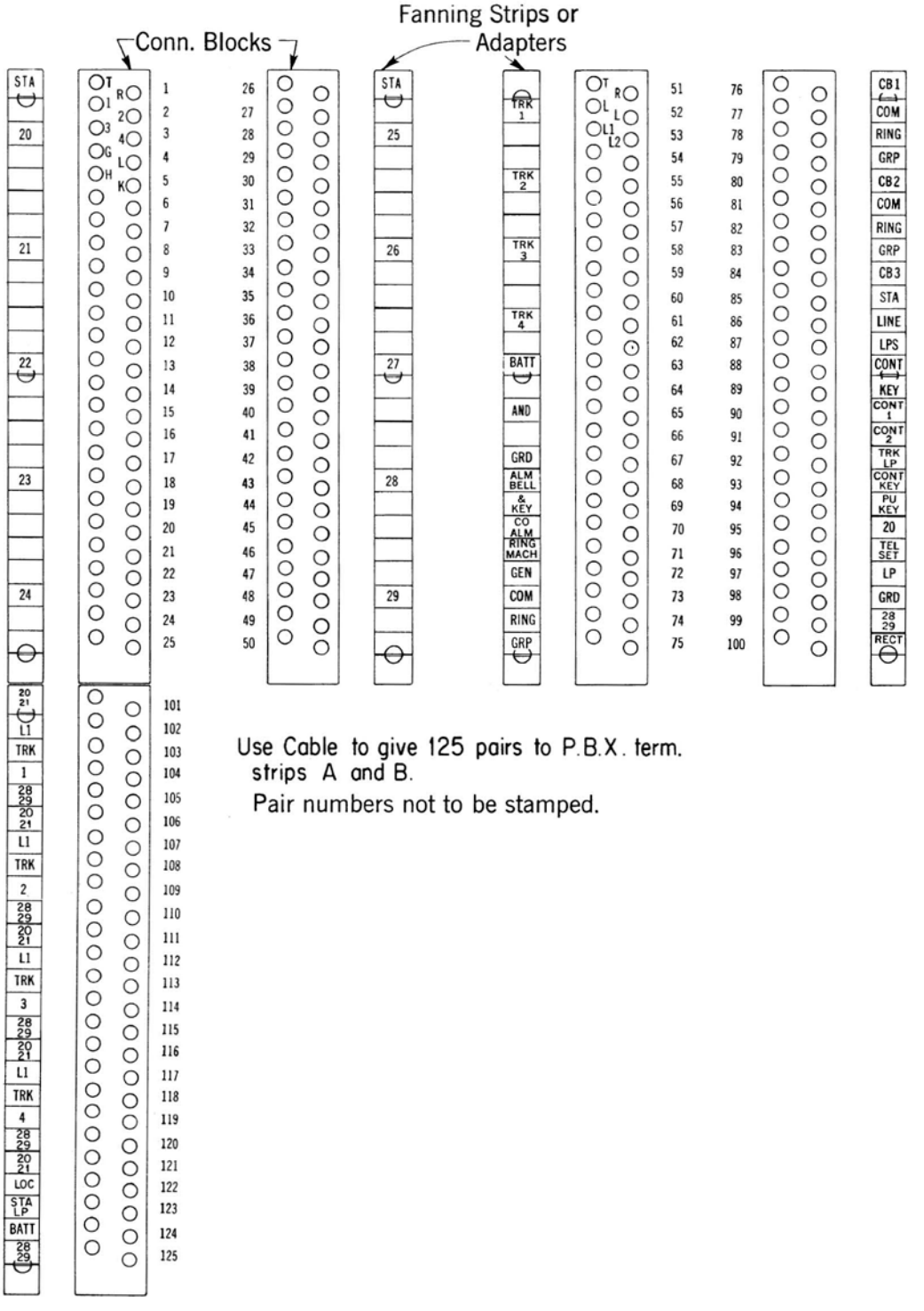
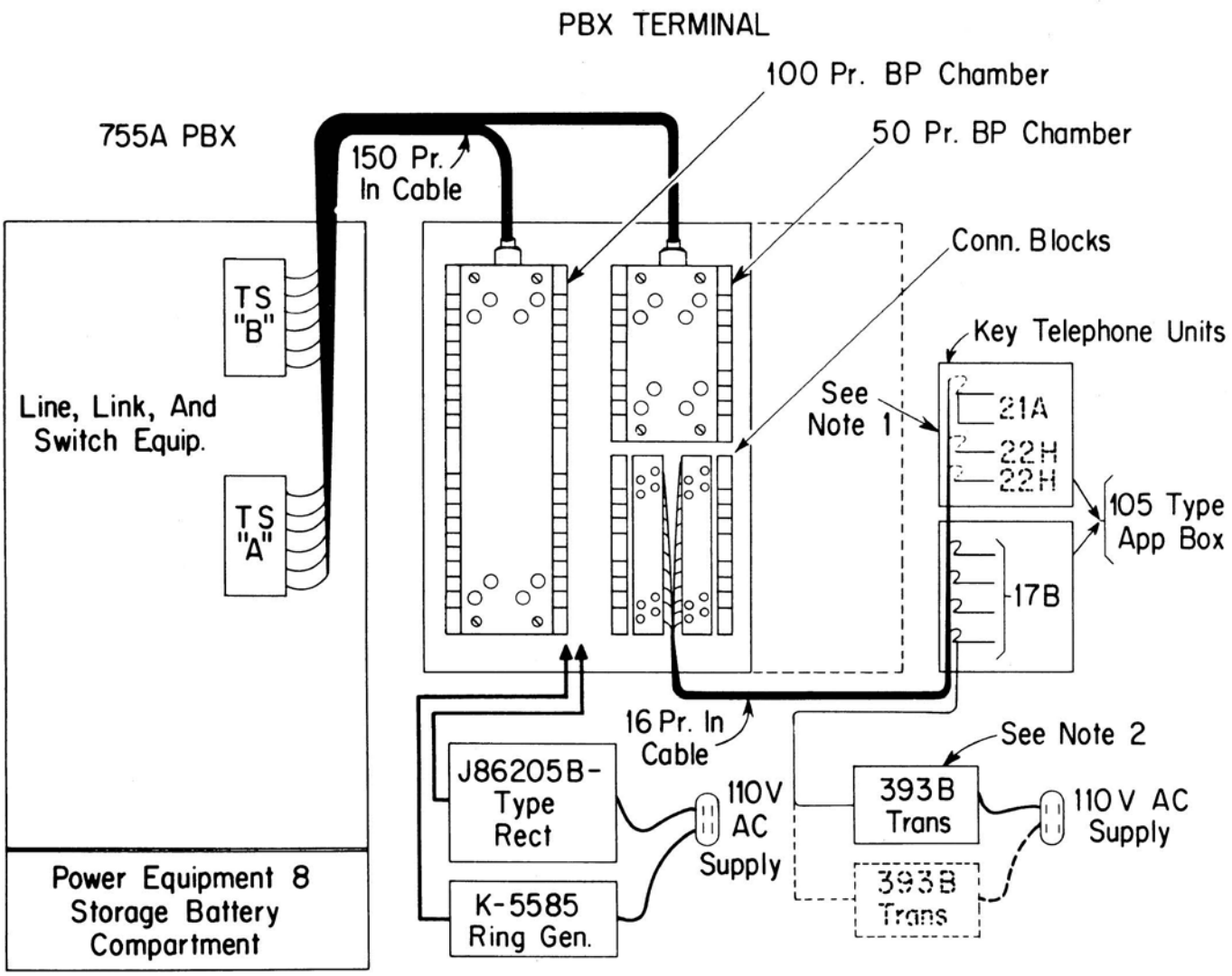


Fig. 5 — Arrangement of Connecting Blocks — 10-Line Size — Lamp Power from PBX

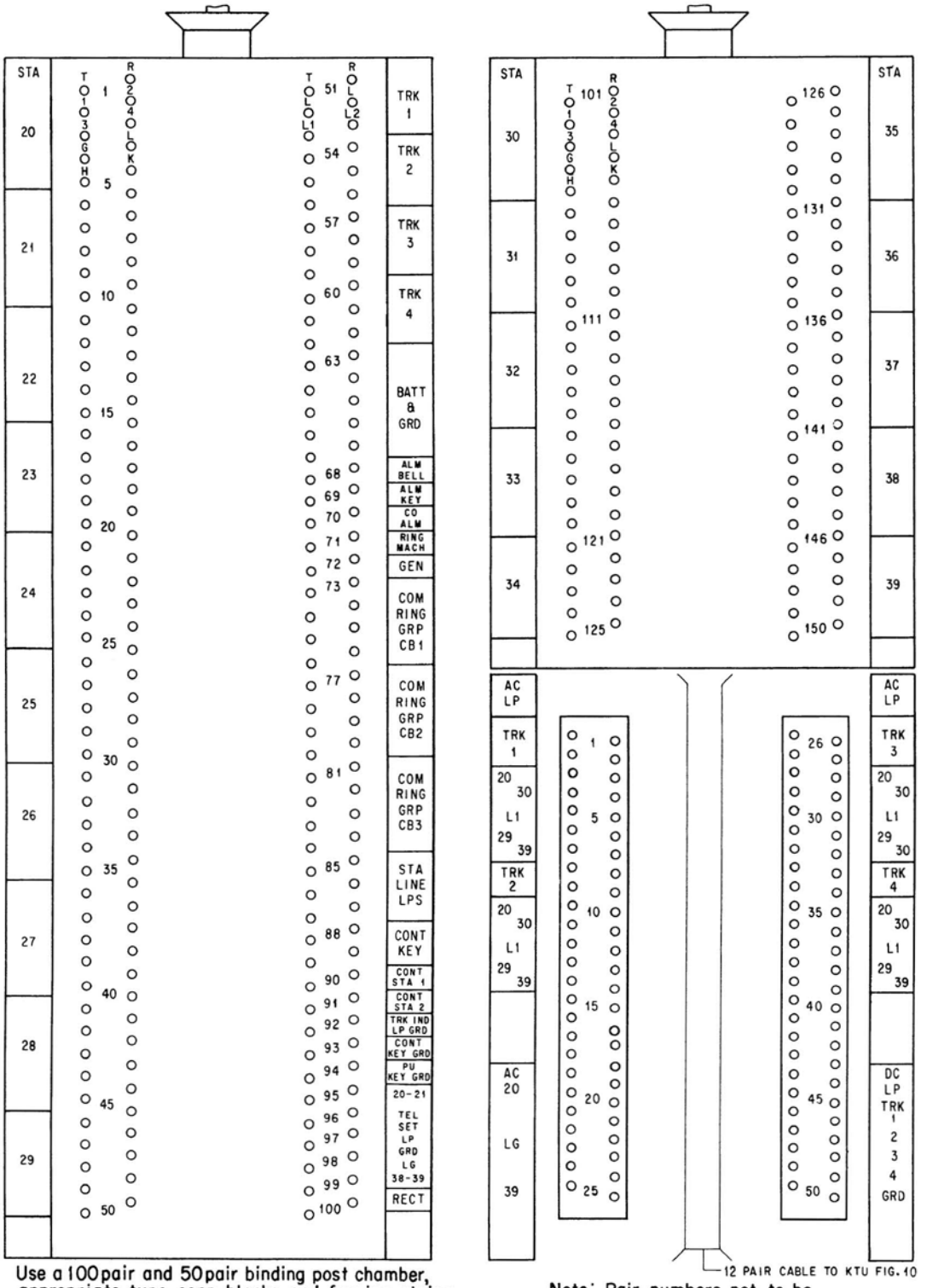


NOTES: 1. Provide two 22H KTU when primary appearances of DC powered lamps is required. See Paragraph 4.11

2. Provide one 393B transformer for 72 lamps or less. Wiring between transformer secondaries and 21A KTU fuses must be 20 GA or larger copper.

3. Key Telephone Units may be mounted in the PBX terminal, space permitting.

Fig. 6 — Typical Arrangement of 20-Line PBX — Lamp Power from Transformers



Use a 100 pair and 50 pair binding post chamber, appropriate type conn blocks, and fanning strips
Terminate station lines as shown for stations 20 to 29.
Pair numbers not to be stamped.

Note: Pair numbers not to be stencilled.
Pairs 40 to 45 spare

Fig. 7 — Arrangement of Binding Post Chambers and Connecting Blocks 20-Line PBX — Lamp Power from Transformers

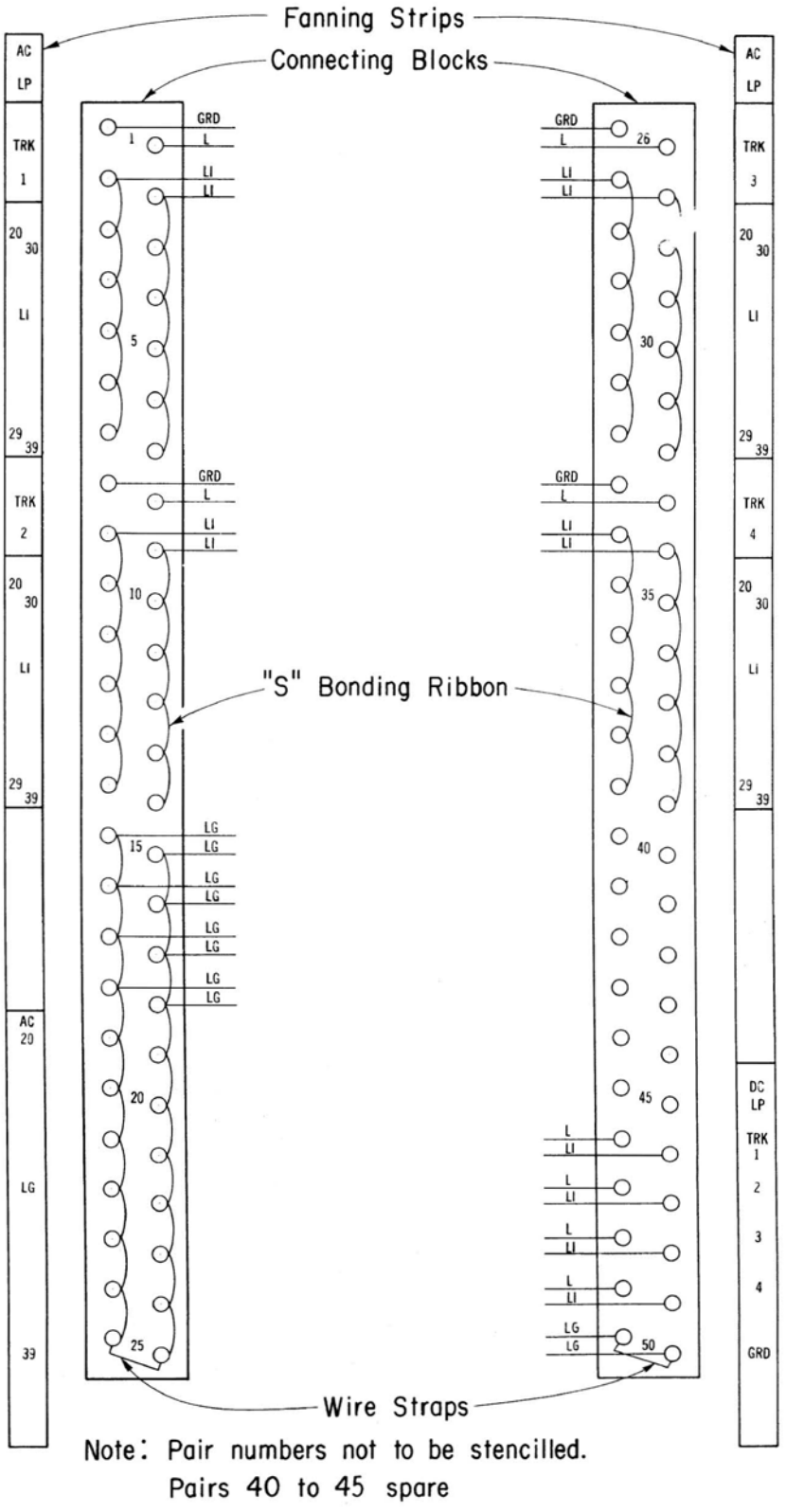


Fig. 8 — Wiring of Connecting Blocks from 17B KTU — Lamp Power from Transformers and DC Power for Primary Appearance of Lamps

FIG A
RELAY CONTROL

FIG. B
9-11V AC SUPPLY

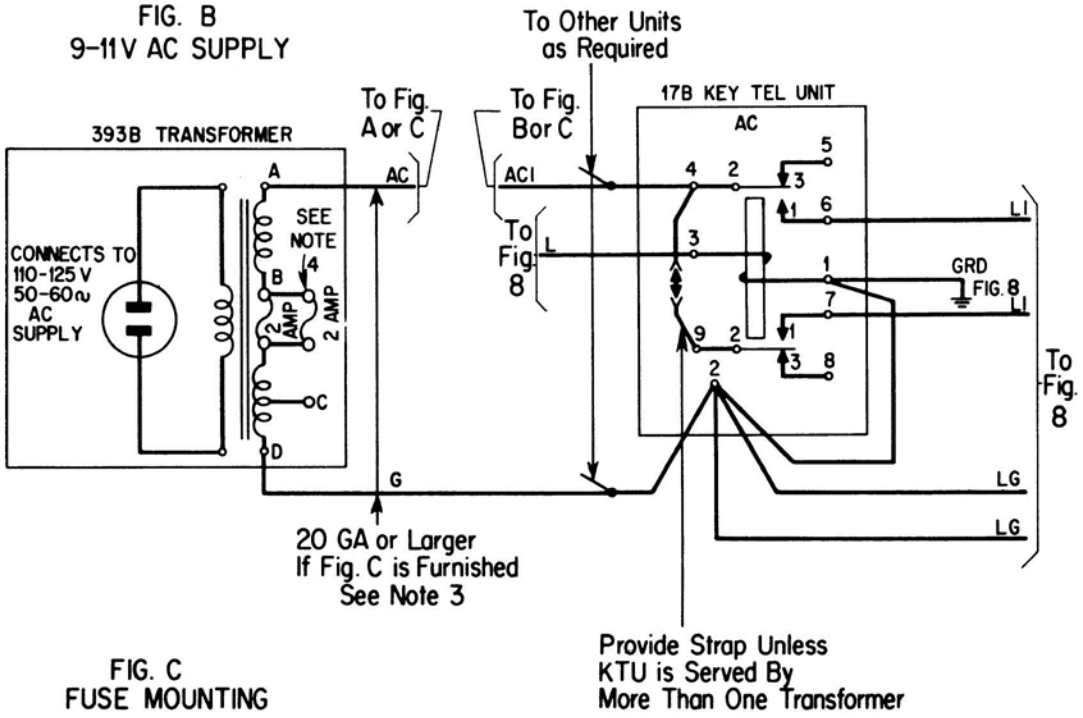
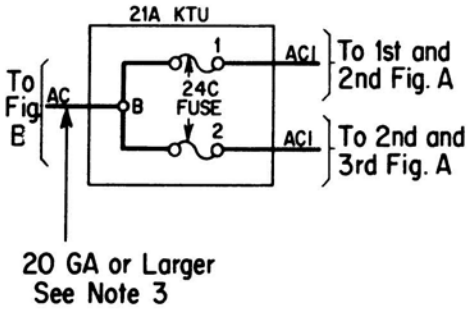


FIG. C
FUSE MOUNTING



NOTES

1. Furnish one Fig. A per Trunk.
2. Furnish one Fig. B with Fig. A if not more than 36 Lamps are required. Furnish one Fig B and C with Fig. A if not more than 72 Lamps are required. If more than 72 Lamps are required provide additional Figs. B and C.
3. Wiring between Figs. B and C must be 20 GA or larger Copper.
4. Fuse Fig. B with 2 Amp fuses when Fig. C is provided.
5. Connect the transformer secondary as follows:

LINE VOLTAGE	CONNECT "AC" LEAD TO	CONNECT "G" LEAD TO
110 V	A	D
115 V	A	C
120 V	B	D
125 V	B	C

Fig. 9 — AC Lamp Supply Control Circuit

TABLE A

TERMINATION OF CABLE PAIRS BETWEEN CROSS-CONNECTING TERMINAL AND PBX TERMINAL STRIPS A AND B

CABLE PAIR NOS.	TERMINATIONS AT CROSS-CONNECTING TERMINAL	TERMINATIONS AT PBX TERMINAL STRIP A	TERMINATIONS AT PBX TERMINAL STRIP B	NOTES
1-50 101-150	1-50 101-150	Station Lines 20-29	Station Lines 30-39	
51 52 53	51 Trk 1 52 Lamp Bat Trk 1 53 L1 & L2 Trk 1	Trk 1 (T & R) Tip on 1, Ring on 7 Tip on 12, Ring on 6		 1 2
54 55 56	54 Trk 2 55 Lamp Bat Trk 2 56 L1 & L2 Trk 2	Trk 2 (T & R) Tip on 2, Ring on 8 Tip on 24, Ring on 18		 1 2
57 58 59	57 Trk 3 58 Lamp Bat Trk 3 59 L1 & L2 Trk 3	Trk 3 (T & R) Tip on 3, Ring on 9 Tip on 36, Ring on 30		 1 2
60 61 62	60 Trk 4 61 Lamp Bat Trk 4 62 L1 & L2 Trk 4	Trk 4 (T & R) Tip on 4, Ring on 10 Tip on 48, Ring on 42		
63 64 65 66 67	63 64 65 Batt & Grd 66 67		Tips on Grd Lugs 1 to 5 Rings on Batt Lugs 50 to 54 or 52 to 56	 3
68 69 70 71 72	68 Alarm Bell 69 Alarm Key 70 CO Alarm 71 Loc Ring Mach 72 Generator		Tip on 24, Ring on 27 Tip on 6, Ring on 30 Tip on 35, Ring on 36 Tip on 6, Ring on 60 Tip on 13, Ring on 25	
73 74 75 76	73 CB1 74 Common Trk 75 Ringer Grp 76	Trk 1 Ring on 13 Trk 2 Ring on 14 Trk 3 Ring on 15 Trk 4 Ring on 16	Tip on 13 Tip on 13 Tip on 14 Tip on 14	 4
77 78 79 80	77 CB2 78 Common Trk 79 Ringer Grp 80	Trk 1 Ring on 25 Trk 2 Ring on 26 Trk 3 Ring on 27 Trk 4 Ring on 28	Tip on 15 Tip on 15 Tip on 16 Tip on 16	 4

TABLE A — Continued

CABLE PAIR NOS.	TERMINATIONS AT CROSS-CONNECTING TERMINAL	TERMINATIONS AT PBX TERMINAL STRIP A	TERMINATIONS AT PBX TERMINAL STRIP B	NOTES
81	81 CB3	Trk 1 Ring on 37	Tip on 17	
82	82 Common Trk	Trk 2 Ring on 38	Tip on 17	4
83	83 Ringer Grp	Trk 3 Ring on 39	Tip on 18	
84	84	Trk 4 Ring on 40	Tip on 18	
85	85 Sta Line Lamps	Tip on 17, Ring on 23		
86	86 Sta Line Lamps	Tip on 29, Ring on 35		5
87	87 Sta Line Lamps	Tip on 41, Ring on 47		
88	88 (Control Key—Leads 5 & 6)		Tip on 43, Ring on 44	
89	89 (Control Key—Leads 7 & 8)		Tip on 45, Ring on 46	6
90	90 (Controlled Sta #1—Leads Sw & A)		Tip on 37, Ring on 38	
91	91 (Controlled Sta #2—Leads Sw & A)		Tip on 39, Ring on 40	
92	92 Grd for Trunk Lamp		Tip on 9, Ring on 10	7
93	93 Grd for Control Key		Tip on 12, Ring on 12	6
94	94 Grd for Pick-up Key		Tip on 7, Ring on 7	8
95	95 LG for Sta 20-23		Tip on 19, Ring on 20	
96	96 LG for Sta 24-27		Tip on 21, Ring on 22	
97	97 LG for Sta 28-31		Tip on 23, Ring on 28	
98	98 LG for Sta 32-35		Tip on 29, Ring on 33	
99	99 LG for Sta 36-39		Tip on 34, Ring on 41	
100	100 Rectifier		Tip on 11, Ring on 49	

CABLE PAIR NOS.	TERMINATIONS AT CROSS-CONNECTING TERMINAL	TERMINAL DESIGNATIONS ON THE J58819M-L1 RESISTANCE UNIT
151	151 Trk 1 L1 Lead for Sta 20 & 21	Tip on 1, Ring on 2
152	152 Trk 1 L1 Lead for Sta 22 & 23	Tip on 3, Ring on 4
153	153 Trk 1 L1 Lead for Sta 24 & 25	Tip on 5, Ring on 6
154	154 Trk 1 L1 Lead for Sta 26 & 27	Tip on 7, Ring on 8
155	155 Trk 1 L1 Lead for Sta 28 & 29	Tip on 9, Ring on 10

TABLE A — Continued

CABLE PAIR NOS.	TERMINATIONS AT CROSS-CONNECTING TERMINAL	TERMINAL DESIGNATIONS ON THE J58819M-L1 RESISTANCE UNIT
156	156 Trk 1 L1 Lead for Sta 30 & 31	Tip on 11, Ring on 12
157	157 Trk 1 L1 Lead for Sta 32 & 33	Tip on 13, Ring on 14
158	158 Trk 1 L1 Lead for Sta 34 & 35	Tip on 15, Ring on 16
159	159 Trk 1 L1 Lead for Sta 36 & 37	Tip on 17, Ring on 18
160	160 Trk 1 L1 Lead for Sta 38 & 39	Tip on 19, Ring on 20
161	161 Trk 2 L1 Lead for Sta 20 & 21	Tip on 21, Ring on 22
162	162 Trk 2 L1 Lead for Sta 22 & 23	Tip on 23, Ring on 24
163	163 Trk 2 L1 Lead for Sta 24 & 25	Tip on 25, Ring on 26
164	164 Trk 2 L1 Lead for Sta 26 & 27	Tip on 27, Ring on 28
165	165 Trk 2 L1 Lead for Sta 28 & 29	Tip on 29, Ring on 30
166	166 Trk 2 L1 Lead for Sta 30 & 31	Tip on 31, Ring on 32
167	167 Trk 2 L1 Lead for Sta 32 & 33	Tip on 33, Ring on 34
168	168 Trk 2 L1 Lead for Sta 34 & 35	Tip on 35, Ring on 36
169	169 Trk 2 L1 Lead for Sta 36 & 37	Tip on 37, Ring on 38
170	170 Trk 2 L1 Lead for Sta 38 & 39	Tip on 39, Ring on 40
171	171 Trk 3 L1 Lead for Sta 20 & 21	Tip on 41, Ring on 42
172	172 Trk 3 L1 Lead for Sta 22 & 23	Tip on 43, Ring on 44
173	173 Trk 3 L1 Lead for Sta 24 & 25	Tip on 45, Ring on 46
174	174 Trk 3 L1 Lead for Sta 26 & 27	Tip on 47, Ring on 48
175	175 Trk 3 L1 Lead for Sta 28 & 29	Tip on 49, Ring on 50
176	176 Trk 3 L1 Lead for Sta 30 & 31	Tip on 51, Ring on 52
177	177 Trk 3 L1 Lead for Sta 32 & 33	Tip on 53, Ring on 54
178	178 Trk 3 L1 Lead for Sta 34 & 35	Tip on 55, Ring on 56
179	179 Trk 3 L1 Lead for Sta 36 & 37	Tip on 57, Ring on 58
180	180 Trk 3 L1 Lead for Sta 38 & 39	Tip on 59, Ring on 60
181	181 Trk 4 L1 Lead for Sta 20 & 21	Tip on 61, Ring on 62
182	182 Trk 4 L1 Lead for Sta 22 & 23	Tip on 63, Ring on 64
183	183 Trk 4 L1 Lead for Sta 24 & 25	Tip on 65, Ring on 66
184	184 Trk 4 L1 Lead for Sta 26 & 27	Tip on 67, Ring on 68
185	185 Trk 4 L1 Lead for Sta 28 & 29	Tip on 69, Ring on 70
186	186 Trk 4 L1 Lead for Sta 30 & 31	Tip on 71, Ring on 72
187	187 Trk 4 L1 Lead for Sta 32 & 33	Tip on 73, Ring on 74
188	188 Trk 4 L1 Lead for Sta 34 & 35	Tip on 75, Ring on 76
189	189 Trk 4 L1 Lead for Sta 36 & 37	Tip on 77, Ring on 78
190	190 Trk 4 L1 Lead for Sta 38 & 39	Tip on 79, Ring on 80
191	191 L1 Leads for Stations provided with local line lamps	Tip on 81, Ring on 82

TABLE A — Continued

CABLE PAIR NOS.	TERMINATIONS AT CROSS-CONNECTING TERMINAL	TERMINAL DESIGNATIONS ON THE J58819M-L1 RESISTANCE UNIT
192	192 L1 Leads for Stations provided with local line lamps	Tip on 83, Ring on 84
193	193 L1 Leads for Stations provided with local line lamps	Tip on 85, Ring on 86
194	194 L1 Leads for Stations provided with local line lamps	Tip on 87, Ring on 88
195	195 L1 Leads for Stations provided with local line lamps	Tip on 89, Ring on 90
196	196 L1 Leads for Stations provided with local line lamps	Tip on 91, Ring on 92
197	197 L1 Leads for Stations provided with local line lamps	Tip on 93, Ring on 94
198	198 L1 Leads for Stations provided with local line lamps	Tip on 95, Ring on 96
199	199 L1 Leads for Stations provided with local line lamps	Tip on 97, Ring on 98
200	200 L1 Leads for Stations provided with local line lamps	Tip on 99, Ring on 100

Notes:

1. L leads, for trunk lamp indicators.
2. L1 and L2 leads, for individual trunk ringers or buzzers. See SD-66503-01.
3. Battery and ground to PBX equipment. When used for central office battery charging feeders, connect rings to terminals 50 to 54. When used for building battery feeders, connect rings to terminals 52 to 56.
4. CB- leads and ground, for trunk ringers. Strap as required on T.S. A to group trunks on common ringers. See SD-66503-01.
5. LL leads, for station line lamps. See SD-66504-01.
6. Leads for control key. See SD-66504-01 and SD-66507-01.
7. Ground leads for trunk lamp indicators.
8. Ground for pick-up key. See SD-66504-01 and SD-66507-01.

TABLE B
TERMINATION OF CABLE PAIRS BETWEEN CONNECTING BLOCK AND KTU UNITS FOR AC LAMPS AND PRIMARY APPEARANCE OF DC LAMPS

AC LAMP SUPPLY

CROSS CONNECT			16 PR CABLE		LEAD DESIG	KTU		
BP CHAMBER PR NO.	STA L1 LEADS	CONN BLK PR NO.	PR NO.	COLOR		TYPE	UNIT	TERM NO.
63 Tip	TRK 1	1	1 Tip	White	GRD	17B	1	1
52 Ring		1	1 Ring	Blue	L	17B	1	3
		2	2 Tip	White	L1	17B	1	6
		2	2 Ring	Orange	L1	17B	1	7
		15	3 Tip	White	LG	17B	1	2
		15	3 Ring	Green	LG	17B	1	2
	20-39	3-7						
64 Tip	TRK 2	8	4 Tip	White	GRD	17B	2	1
55 Ring		8	4 Ring	Brown	L	17B	2	3
		9	5 Tip	White	L1	17B	2	6
		9	5 Ring	Slate	L1	17B	2	7
		16	6 Tip	Red	LG	17B	2	2
		16	6 Ring	Blue	LG	17B	2	2
	20-39	10-14						
65 Tip	TRK 3	26	7 Tip	Red	GRD	17B	3	1
58 Ring		26	7 Ring	Orange	L	17B	3	3
		27	8 Tip	Red	L1	17B	3	6
		27	8 Ring	Green	L1	17B	3	7
		17	9 Tip	Red	LG	17B	3	2
		17	9 Ring	Brown	LG	17B	3	2
	20-39	28-32						
66 Tip	TRK 4	33	10 Tip	Red	GRD	17B	4	1
61 Ring		33	10 Ring	Slate	L	17B	4	3
		34	11 Tip	Black	L1	17B	4	6
		34	11 Ring	Blue	L1	17B	4	7
		18	12 Tip	Black	LG	17B	4	2
		18	12 Ring	Orange	LG	17B	4	2
	20-39	35-39						
	LG	19-25						

DC LAMP SUPPLY

52 Tip	TRK 1	46	13 Tip	Black	L	22H	1	3
	L1	46	13 Ring	Green	L1	22H	1	2
55 Tip	TRK 2	47	14 Tip	Black	L	22H	1	4
	L1	47	14 Ring	Brown	L1	22H	1	6
58 Tip	TRK 3	48	15 Tip	Black	L	22H	1	1
	L1	48	15 Ring	Slate	L1	22H	1	8
61 Tip	TRK 4	49	16 Tip	Yellow	L	22H	2	3
	L1	99	16 Ring	Blue	L1	22H	2	2
95 Tip	LG	50						
95 Ring	LG	50						

Cabling Between Cross-Connecting Terminal and PBX

(A) Cable Entrance At Top of PBX

4.13 When the cable is brought in thru top entrance hole of the PBX, Fig. 10, remove cover plate and place it over cable hole in partition above battery compartment.

4.14 Remove fibre sheet replaced by cable hole cover in 4.13 and if cable does not fill hole, cut fibre to fit around cable.

4.15 Butt incoming lead covered cables just above entrance hole and tape. See Fig. 10.

4.16 Inside wiring cable used for incoming cables may be run to jumper rings before removing outer sheath. See Fig. 12.

4.17 Enter cable and sew to jumper rings. See Fig. 10 or 12.

4.18 Conductor pairs in cable between cross-connecting terminal and PBX terminal strips A and B are shown in Figs. 3, 4, 5, or 7, and Table A.

4.19 Run groups of pairs thru proper fanning holes in terminal strips A and B. Skin and connect to terminals. See Figs. 13 and 14, and Table A.

4.20 When dc lamp power is to be provided, run groups of pairs to lamp resistance unit. Sew into form, skin, and connect. See Fig. 2. The "L" leads from trunk and station equipment, terminated on terminal strip A, may be sewn in the same form. The J58819M, L1 Resistance Unit (See 3.21) is made up of fifty 19-type resistors. Each 19-type resistor consists of two 290-ohm resistances. Each resistor has a terminal for each 290-ohm resistance and a center tap terminal. The odd numbered terminals are the top terminals and the even numbered terminals are the bottom terminals of the fifty 19-type resistors. Connect the tip wire of the first lamp lead pair to the top terminal (1) of the first resistor and the ring wire to the bottom terminal (2) of the first resistor, etc. See Table A. Straps between center terminals of resistors shall be arranged to group resistors per job requirements. Connect "L" leads to grouped resistors accordingly.

4.21 Enter cable into cross-connecting terminal, skin, and connect to terminals as shown in Fig. 4 or 5 and Table A. With binding post chambers shown in Fig. 3 or 7 this is not necessary as cable pairs are shop connected, if not, terminate as shown.

(B) Cable Entrance at Bottom of PBX

4.22 When cable is brought in at bottom of the PBX, remove fibre piece covering hole and if cable does not fill hole cut fibre to fit around cable.

4.23 Cables may be brought into the PBX from below. It will be necessary to cut holes in wooden base to match slots in metal PBX framework.

4.24 Butt incoming lead covered cable and tape. See Fig. 11. Where dirt and dampness are not a consideration the cable may be butted outside the PBX, taped, and brought in as shown.

4.25 Run cable along floor of battery compartment in bottom of PBX and upward through cable hole in top of battery compartment to jumper rings. See Fig. 11.

4.26 Inside wiring cable, used for incoming cables, may be run to the jumper rings shown in Fig. 11 before removing the outer sheath.

4.27 Sew cables to jumper rings and terminate as covered in 4.18 through 4.21.

Connections at PBX Terminal Strips in Lieu of Cross-Connecting Terminal

4.28 Generally this type installation would apply when power for trunk lamps is to be furnished from the PBX battery or local building battery.

4.29 Install two No. 100-type terminal strips in the location shown in Fig. 12 where it is desired to provide arrangements for cross-connecting station lines at PBX terminal strips.

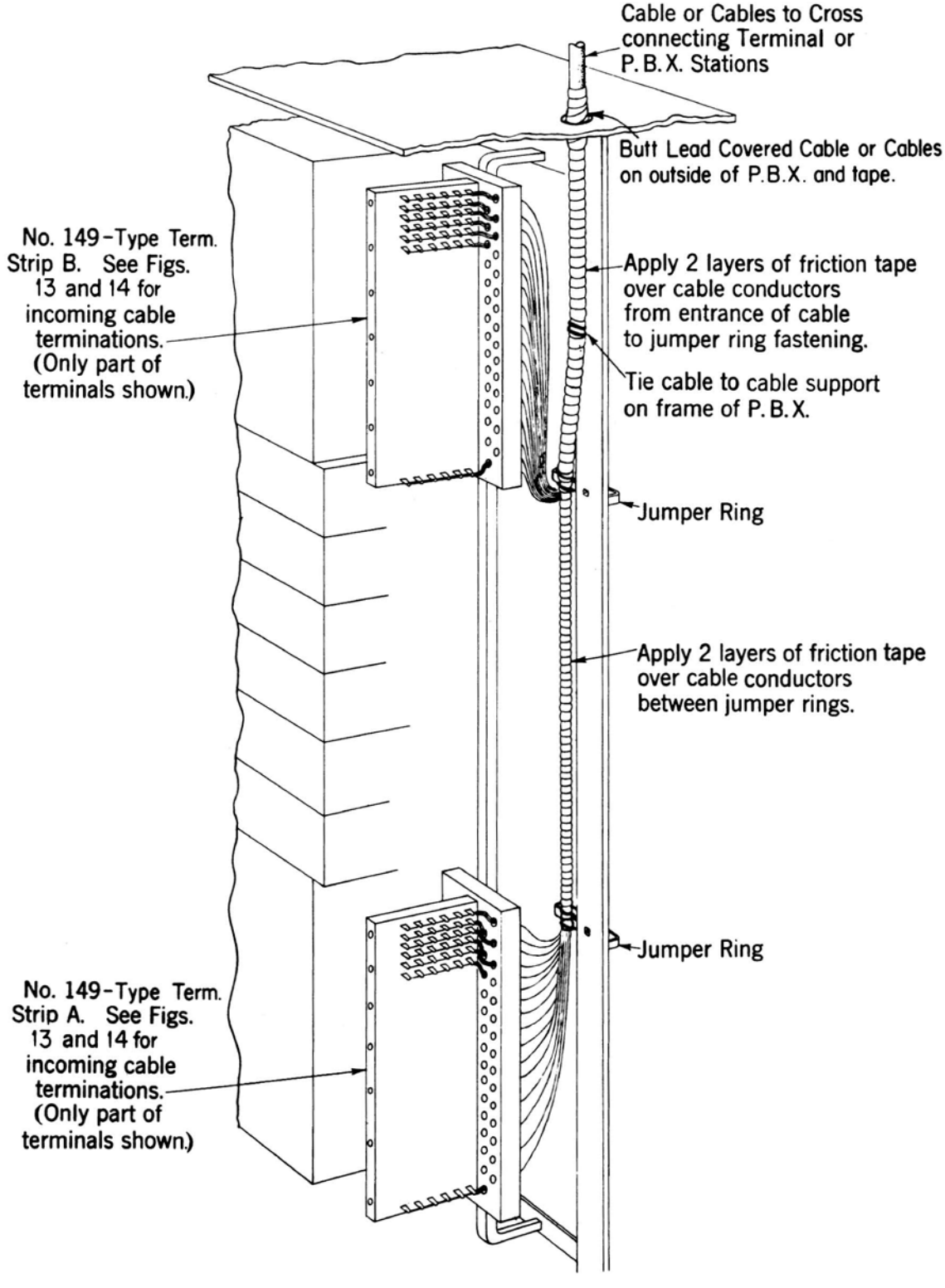


Fig. 10 — Typical Cabling of PBX With Lead Covered Cable Where a Cross-Connecting Terminal is Provided — Cable Entrance at Top of PBX

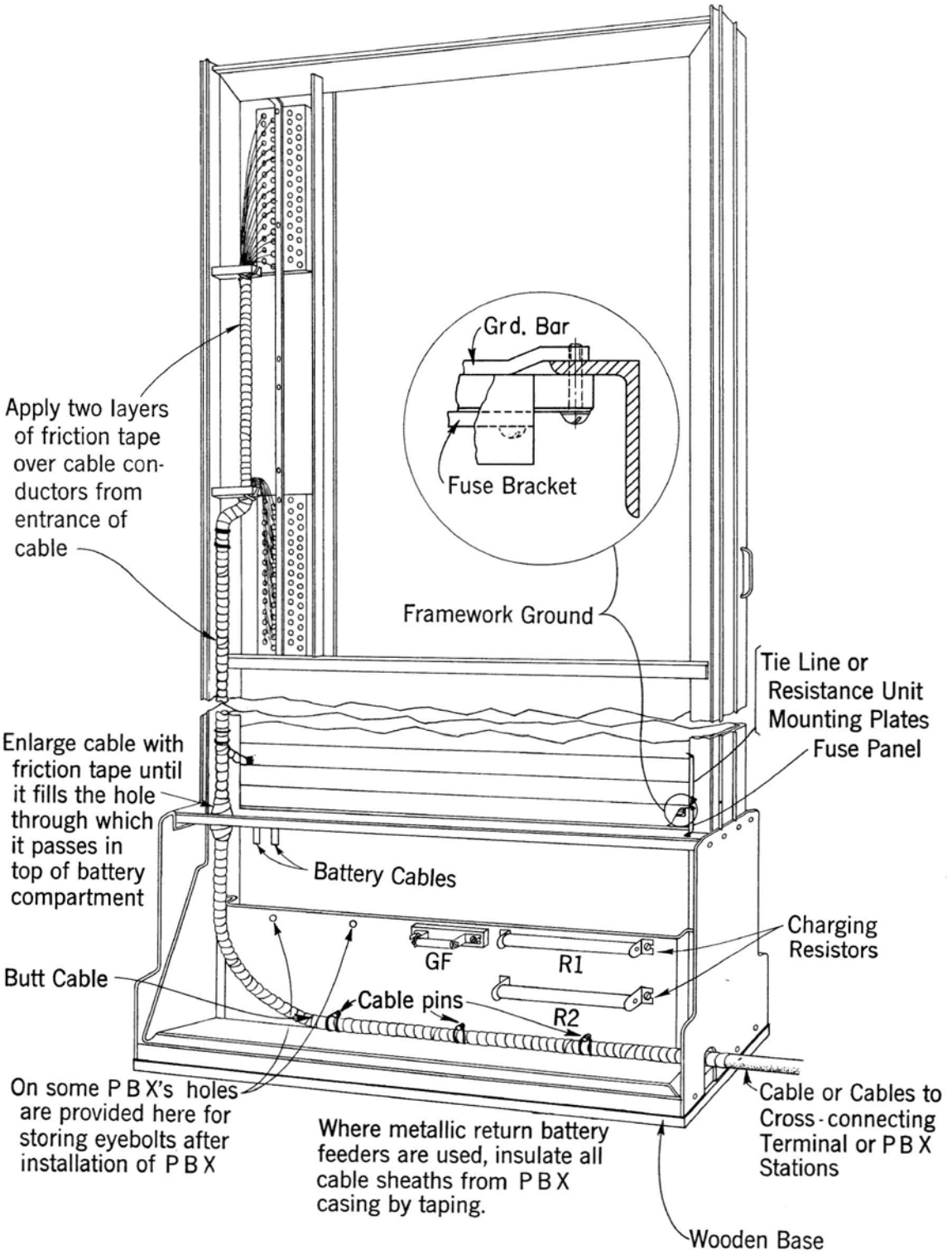


Fig. 11 — Typical Cabling of PBX Where a Cross-Connecting Terminal is Provided — Cable Entrance at Bottom of PBX is Shown With Lead Covered Cable

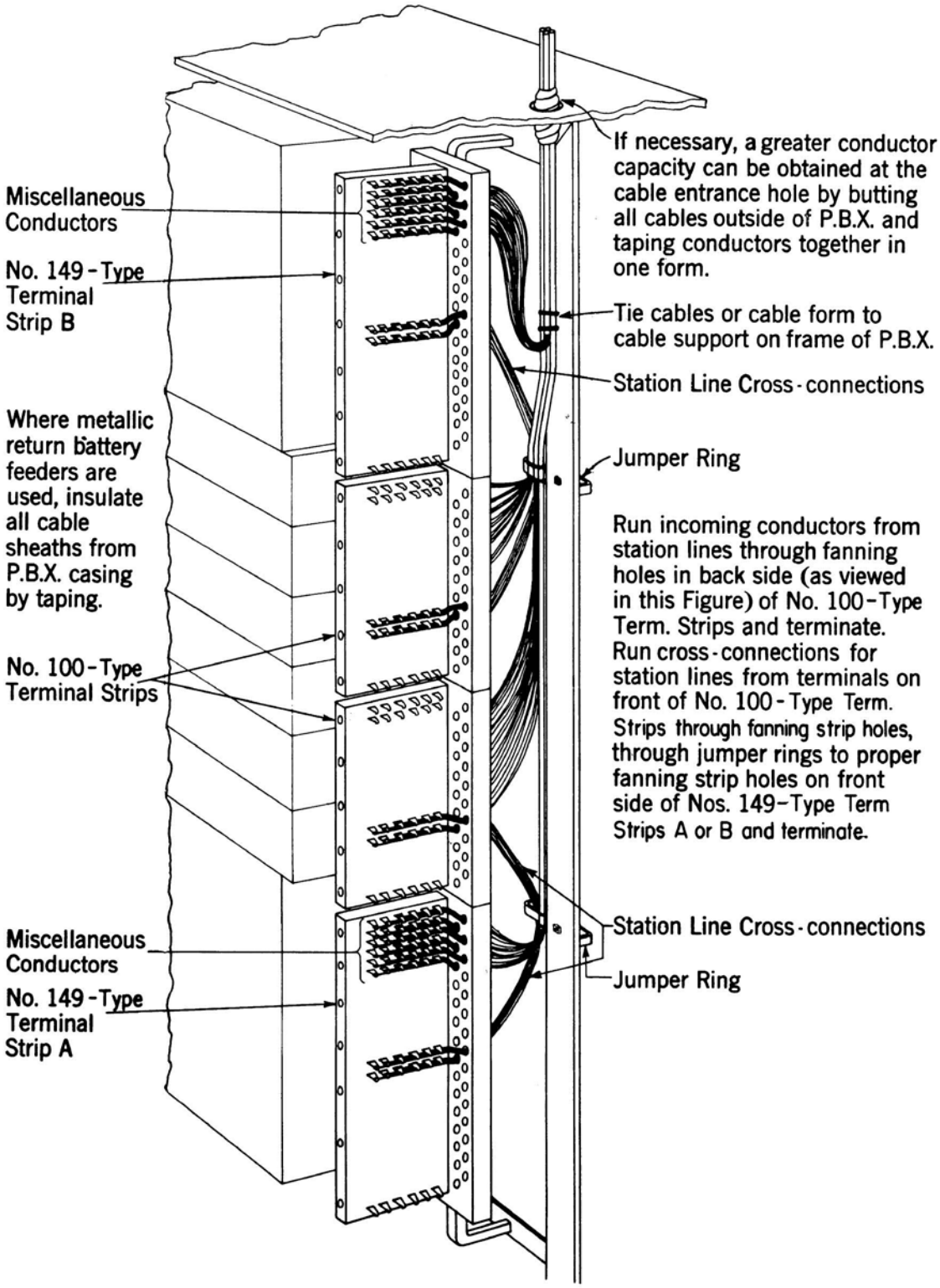


Fig. 12 — Typical Cabling of PBX Where Cross Connections are Made at the PBX Terminal Strips

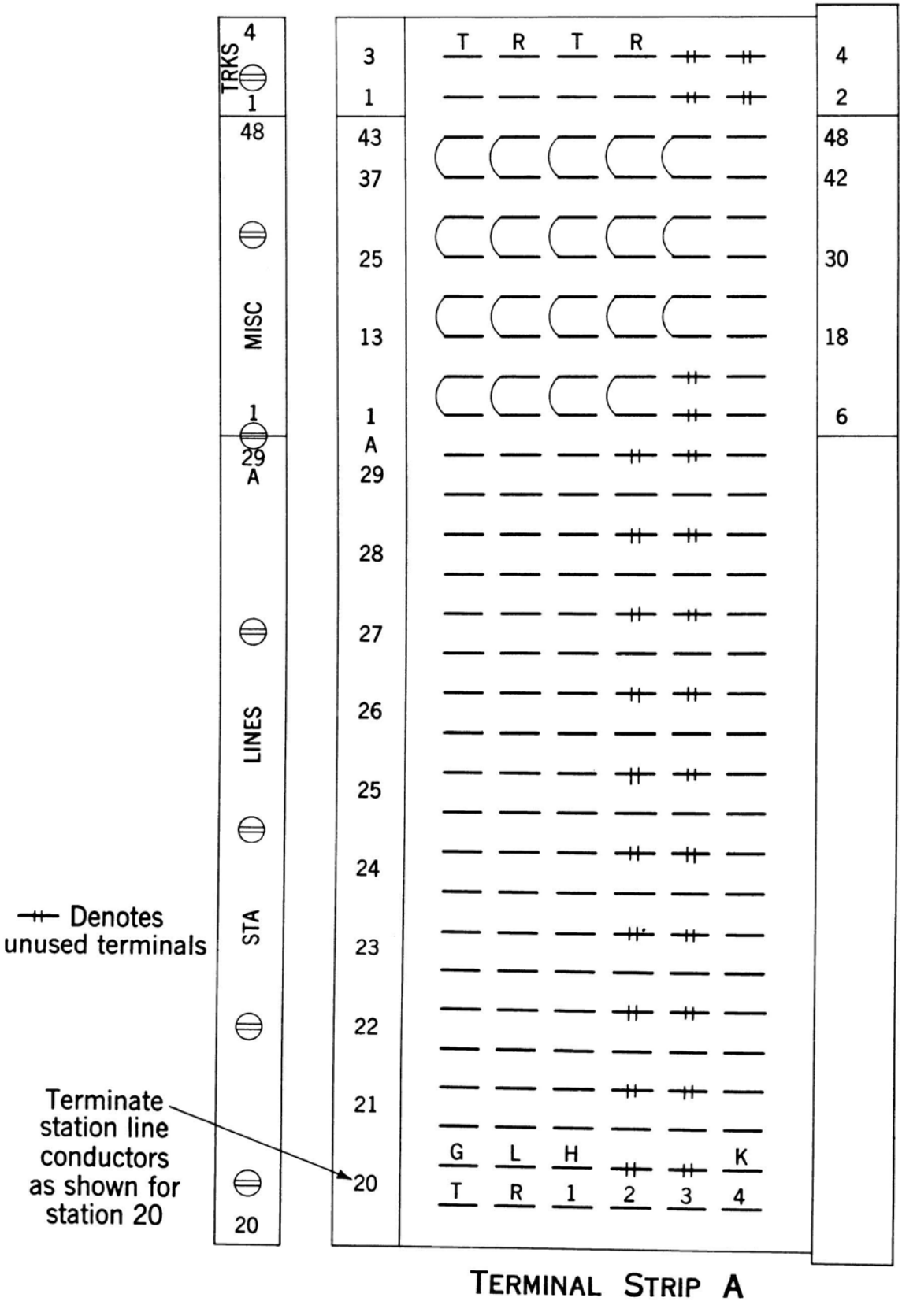


Fig. 13 — Incoming PBX Terminal Strip A

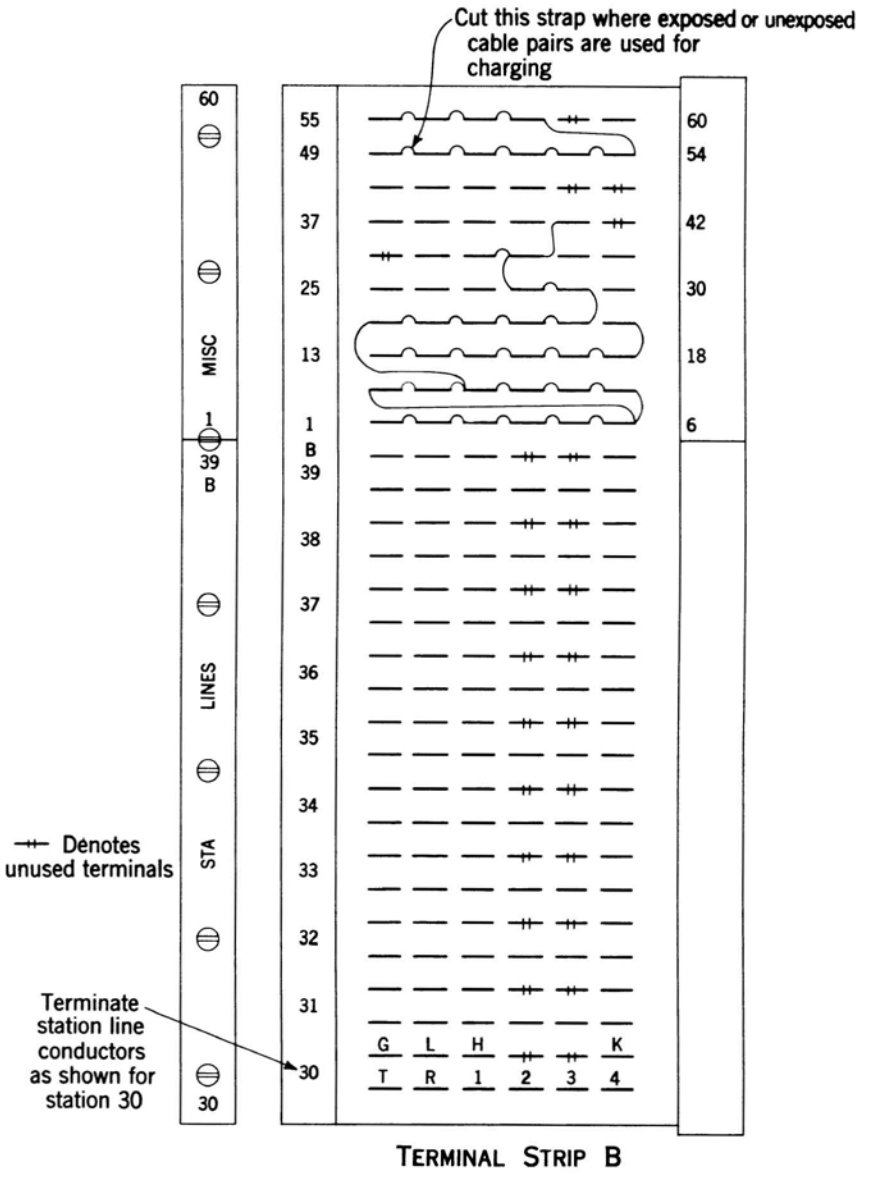


Fig. 14 — Incoming PBX Terminal Strip B

4.30 Station line and the miscellaneous conductors will usually enter the PBX in several small cables. Bring these cables into PBX and fan out to terminal strips as shown in Fig. 12.

4.31 Terminate only station lines on the No. 100-type terminal strips shown in Fig. 12. Terminals on the No. 100-type terminal strips are arranged like those on the A and B terminal strips in the PBX. The incoming station conductors should therefore be connected to the terminals in a manner corresponding to that shown in Figs. 13 and 14.

4.32 Cross-connect station lines in accordance with job instructions from the No. 100-type terminal strips to required station line terminals on the A and B terminal strips. See Fig. 12.

4.33 Terminate lamp leads on resistance unit as covered in 4.20.

4.34 Terminate all other conductors at same miscellaneous terminals of A and B terminal strips as covered in Table A.

Installing PBX Battery

4.35 Precautions which may be deemed necessary such as the use of rubber gloves, rubber aprons, goggles, glass or glazed earthenware battery utensils, shall be employed in the handling of electrolyte. A coating of petrolatum on the hands will give some measure of protection in case of slight exposure to electrolyte. See also Division Index 157-000-000.

4.36 When the battery is furnished from a local storeroom where it has been given a freshening charge and is ready for service, proceed as follows, referring to Fig. 15:

(a) Remove battery jars and connectors from shipping case.

(b) Inspect each battery jar to see that all batteries are from same manufacturer, that electrolyte is at proper height, and that white ball is at top of cage. Bring to the attention of your supervisor any unusual condition. Do not expose the cells to unusual heat conditions such as storing near radiator or heating pipes.

(c) Pull the sliding battery shelf forward and place the 5 battery jars in position.

(d) Place battery jars on shelf with positive (+) terminals (end of battery with charge indicators) facing handle of battery shelf.

(e) Connect negative (—) terminal of right-hand cell to positive (+) terminal of next jar by one of the 4 short connector cables. Connect other jars in same manner.

(f) Connect long power cable designated (—) to negative (—) terminal of left-hand jar and the other long power cable to positive (+) terminal of right-hand jar.

(g) Push the battery shelf back into place. Replace lower casings of the PBX.

Note: Reference to the use of rubber battery trays has been omitted as they are generally not required with plastic battery jars.

4.37 When the battery is furnished with dry plates, place cells in PBX, add electrolyte, and connect to power wiring as provided in 4.36 (c) to (g). When charging arrangements are ready the battery should be given an initial charge in accordance with practices relating to initial charges of enclosed type storage batteries. If convenient, leave battery on sliding shelf extended as shown in Fig. 15, during initial charge.

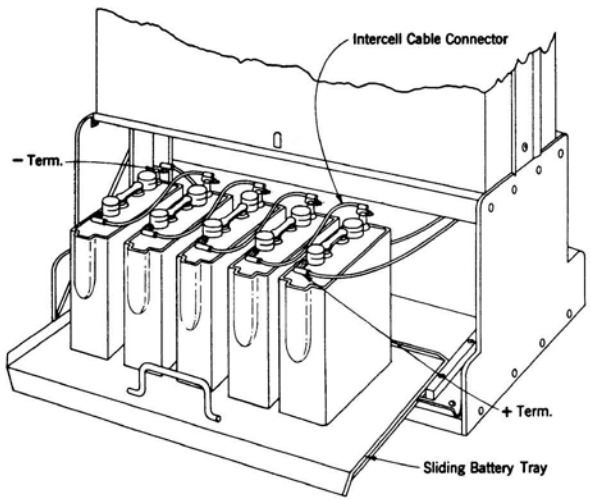


Fig. 15 — Battery Connections

Installing Fuses for CO Battery Charging Feeders

4.38 When exposed or unexposed battery charging feeders are used, remove the strap between terminals 49 and 50 on Terminal Strip B. Place a No. 60E fuse in the No. 14A fuse block designated GF as shown in Fig. 11. Connect battery feeders as shown in Figs. 3, 4, 5, or 7, and Table A.

Installing Rectifier for Charging PBX Batteries

4.39 A J86205B, List 3, or List 4 rectifier may be provided to charge the PBX batteries. Refer to Division Index 169-000-000 and Fig. 2 for installation of this equipment. Connect as shown in Figs. 3, 4, 5, or 7, and Table A.

Use of Building Battery to Supply Power to PBX

4.40 When building battery is used to provide battery supply to the PBX, the PBX storage battery is eliminated. Remove the CHG and CC fuses from the PBX fuse panel.

4.41 Spare fuses on the PBX fuse panel are used to feed building battery to the PBX. One fuse in the PBX should be used for each house cable group from a fuse at the building battery. Provide wiring as covered in 4.42 to 4.45.

4.42 Connect the building battery feeders to pairs 63 thru 67 as required. The rings of these pairs are terminated on terminals 52 to 56 of T.S. B. See Table A.

4.43 Remove straps between terminals 49 to 58 on T.S. B.

4.44 Place wires from terminals 52 to 56 of T.S. B to spare 1-1/3 ampere fuses on PBX fuse panel if not provided. These fuses are located between the (TONE) and (CC) fuses. On late model PBX, the spare fuses are stenciled BAT IN, 1 to 7.

4.45 The five battery feeders should in most cases provide sufficient power for the PBX. If additional feeders are required, pairs 71 or 72 and 100 in the cross-connecting terminal may be used. The rings of these pairs, if used, must be connected to terminals 57 and 58 on T.S. B and wires run to spare fuses on the fuse panel if not provided.

Installing Generator

4.46 Wiring is provided in the cross-connecting terminal and within the PBX for CO ringing generator or a local ringing generator.

4.47 Connect the generator feeder to the cross-connecting terminal as shown in Figs. 3, 4, 5, or 7, and Table A.

Lettering and Numbering

4.48 Stencil the fanning strips as shown in Figs. 3, 4, 5, or 7 using 1/8″ or 3/16″ rubber stamps in accordance with Section 460-560-201.

4.49 If connecting blocks are used whose binding posts are arranged the same as those in binding post chambers, the stenciling as shown for single lamp leads in Figs. 4, 5, and the connecting blocks shown in Fig. 7 must be transposed.

5. PLACING IN SERVICE

5.01 Placing the 755A PBX in service consists of starting and making initial adjustments at the power plant and placing wiring for the various features and options to be provided. The information in this part pertaining to the various features and options supplements the information on the circuit drawings. If the required information or the specific arrangement needed is not shown, refer to the circuit drawings.

Checking Central Office Charging Conductors

5.02 Check central office feeders for proper condition as follows:

(a) Remove CHG and CC fuses, if previously installed on the fuse panel. Connect (—) terminal of voltmeter to bottom fuse post of CHG fuse and the (+) voltmeter terminal to ground terminal on PBX terminal strip B.

(b) Observe voltage readings for a few minutes to determine that it is within proper range. If a reversed polarity is indicated, the condition shall be corrected.

(c) When the voltmeter indicates that the feeder is in proper condition for use, disconnect the voltmeter and replace fuses.

Placing Battery on Charge

(A) Cable Pair Charging

5.03 Strap out all but the 200 ohm resistance in the R1 charging resistor. See Fig. 11. Adjust resistance in the R2 charging resistor so that its resistance plus that of the cable pairs to be used for charging equals some convenient value between 60 and 80 ohms.

5.04 Remove CHG and CC fuses. Connect (—) and (+) terminals of ammeter to bottom and top fuse posts respectively of the CHG fuse.

5.05 The charging current should be between 350 and 500 milliamperes. Operate CC relay manually. The charging current should then be approximately 100 milliamperes.

5.06 When charging current has been properly established replace CHG and CC fuses and disconnect ammeter. Also place proper fuses in other positions on fuse panel.

(B) Rectifier Charging

5.07 Remove CHG and CC fuses. Connect ammeter as covered in 5.04 and plug rectifier into electric service outlet.

5.08 Adjust R1 resistor to 75 ohms. Strap out all the R2 resistors.

5.09 Adjust rectifier to give about 425 milliamperes in accordance with Division Index 169-000-000.

5.10 Operate CC relay manually. The ammeter should indicate about 100 milliamperes. Readjust R1 resistor, if required, to approximate this value.

Miscellaneous Work Items

(A) Connections on CS (Class of Service) Terminal Strips

5.11 The PBX is furnished with all lines strapped at CS (class of service) terminal strips to provide lockout (secrecy) service and unrestricted outward central office service on all trunks. See Fig. 16 or 17 depending on type of class of service terminal strips furnished with PBX.

5.12 Modify strapping arrangements to provide nonlockout (nonsecrecy) to any line on any trunk as shown in Fig. 16 or 17.

5.13 Modify strapping arrangements to provide restricted outward service to any line on any trunk as shown in Fig. 16 or 17.

(B) Station Line Hunting

5.14 Station line hunting is available only on lines 26-27 and 36-37. Modify the 3 link circuits per SD-66611-01 to provide hunting feature.

(C) Vacant Terminals

5.15 Vacant line circuit terminals require a slight modification as shown on SD-66504-01. Cut strap between 2 and C terminals on hold magnets when line switch is not connected to a station or miscellaneous trunk apparatus.

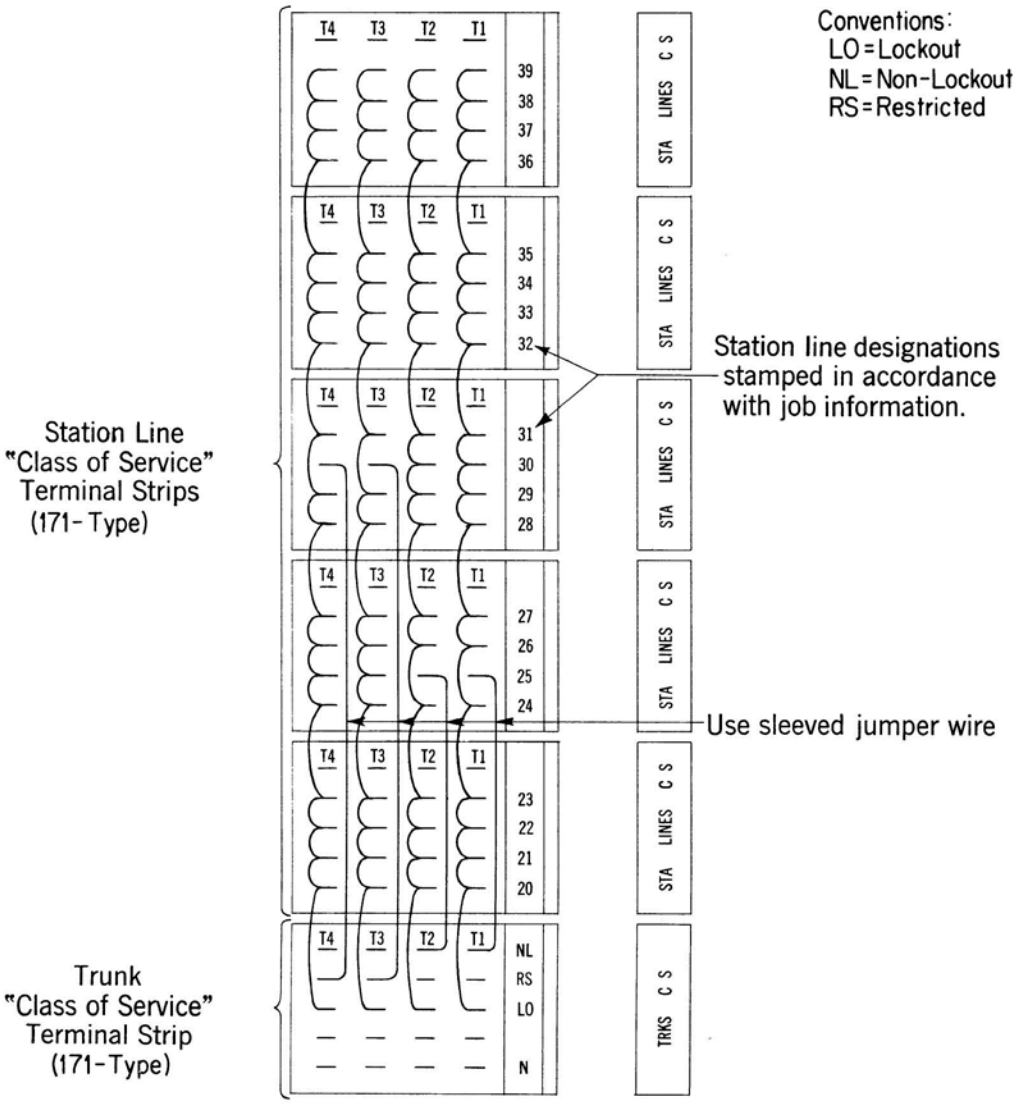
(D) Tie and Recorded Telephone Dictation Trunks

5.16 Dial-type trunk equipment requires that a TL relay be added in each link. Wire and equip as shown on SD-66611-01 and modify the line circuit per SD-66504-01.

5.17 Each dial-type trunk is connected to a station terminal and reduces by one the station line capacity of the PBX.

5.18 Ringdown-type trunk equipment is similar in operation to a regular CO trunk in that it is selected from a key station by depressing a

TERMINAL STRIP ARRANGEMENT

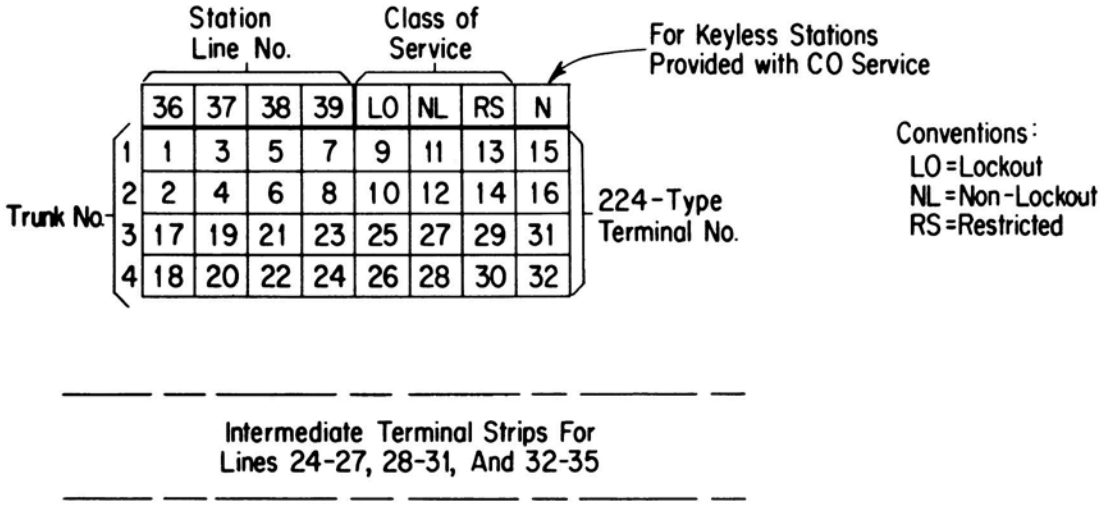


TYPICAL STRAPPING

STA NO.	TRUNK NO.			
	1	2	3	4
25	NL	NL	LO	LO
30	LO	LO	RS	RS

Fig. 16 — Connections at 171-Type (Manufactured Discontinued) CS (Class of Service) Terminal Strips

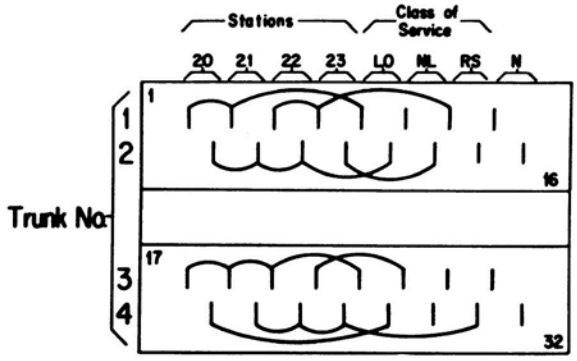
TERMINAL STRIP ARRANGEMENT



Trunk No.	36	37	38	39	LO	NL	RS	N
1	1	3	5	7	9	11	13	15
2	2	4	6	8	10	12	14	16
3	17	19	21	23	25	27	29	31
4	18	20	22	24	26	28	30	32

Trunk No.	20	21	22	23	LO	NL	RS	N
1	1	3	5	7	9	11	13	15
2	2	4	6	8	10	12	14	16
3	17	19	21	23	25	27	29	31
4	18	20	22	24	26	28	30	32

TYPICAL STRAPPING



STA NO.	TRUNK NO. 1	2	3	4
20	LO	LO	LO	LO
21	LO	LO	LO	RS
22	RS	LO	LO	RS
23	RS	NL	NL	RS

Fig. 17 — Connections at 224-Type CS (Class of Service) Terminal Strips

trunk button and may be provided with class of service options. See SD-66504-01.

5.19 Each ringdown-type trunk reduces by one the CO trunk capacity of the PBX.

(E) Connections for Emergency Trunk Key

5.20 Follow Fig. 18 when connecting conductors from the emergency trunk key to the associated station and central office trunk that is designated for emergency service.

(F) Miscellaneous Circuit Modifications

5.21 The PBX is furnished with all station lines arranged for key stations. A number of service features and station facilities may be furnished which require wiring modifications at the PBX apparatus terminals. A set of wiring diagrams showing these modifications is furnished with each PBX and shall be referred to when making changes at apparatus terminals.

(G) Touching Up External Finish of PBX

5.22 If the finish of the PBX is marred during installation, it shall be retouched to approximate the original condition by the use of touch-up finishes listed in 2.05.

6. INSTALLATION TESTS

6.01 Tests and inspections required in connection with installation work, as covered in Section 550-550-230, shall be made before turning equipment over to the customer.

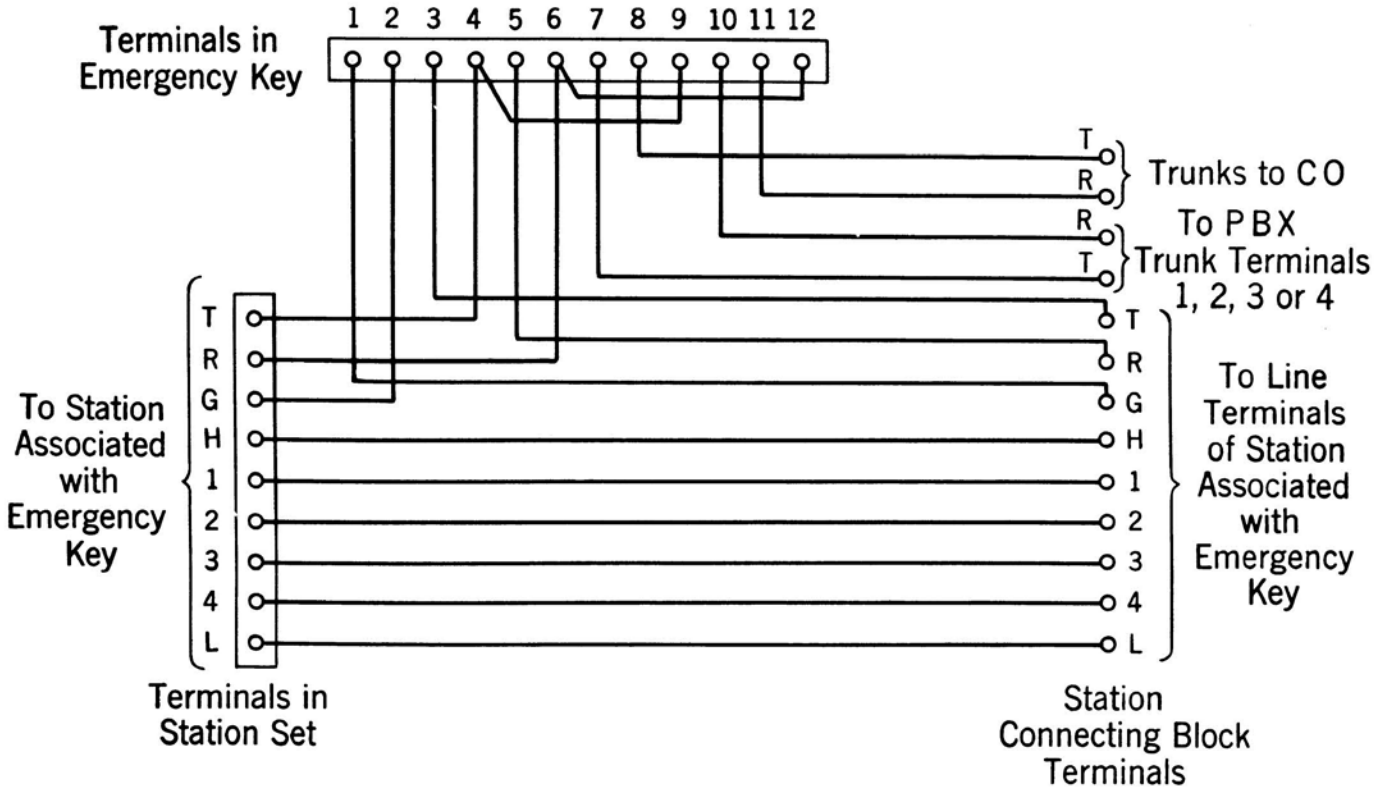


Fig. 18 — Emergency Trunk Key Wiring