1A SWITCH UNIT
MISCELLANEOUS EQUIPMENT
(4-WIRE TRUNK CIRCUIT, ATTENDANT CONFERENCE OR CONFERENCE CALLING CIRCUIT, 3A CODE CALL UNIT TRUNK, PAGING TRUNK, RECORDED TELEPHONE DICTATION TRUNK, DID ANSWERING MACHINE CIRCUIT, TRANSMISSION TEST LINE CIRCUIT, AND ADDITIONAL POWER FAILURE STATION CIRCUITS)
IDENTIFICATION, INSTALLATION, AND CONNECTIONS
NO. 101 ELECTRONIC SWITCHING SYSTEM

1. GENERAL

1.01 Installation instructions for 1A miscellaneous equipment given here are normally confined to installation of circuit packs (CPs) in the switch unit and connections at the cross-connecting terminal and wall cabinets, if required. Installation instructions for additional equipment added externally to the switch unit and not covered here can be found in material covering the specific equipment.

1.02 This section is reissued for the following reasons:

(a) To revise the section to include the transmission test line circuit and the additional power failure station circuits.

(b) To include a third conference circuit in the attendant conference or conference calling circuit.

(c) To include a code call or paging amplifier adapter circuit into the code call circuit.

(d) To add CP 336 and wiring to the recorded telephone dictation circuit.

1.03 Cabling for the switch unit is shown on SD-1H001-01. Schematic diagrams and circuit descriptions are shown in Table A. Fusing for equipment positions (scan points) in the switch unit is on a per tray basis. A fuse is required if any position in a tray is used. Table B shows the fuse designations for the +12 and -48 volt power circuit for the different equipment positions groups.

2. FOUR-WIRE TRUNK CIRCUIT

Identification

2.01 Wall cabinet J1H020A contains the circuitry of the 101 ESS, in addition to the switch unit, which is required at the customer premises for 4-wire trunk circuits. The capacity of the wall cabinet is:

10—4-Wire Tie Trunks

10—24V4 Repeaters

1—Fuse Panel Unit

2.02 The J1H020A cabinet as provided (ED-91180-70, Group 14) is arranged to mount on a wall. When mounting the cabinet on the floor, an ED-91180-70, Group 29 insulating base should be used.

TABLE A

MISCELLANEOUS EQUIPMENT INFORMATION

CIRCUIT	SD AND CD FOR SWITCH UNIT END	CP(s) REQUIRED IN SWITCH UNIT	SWITCH UNIT LOCATION FOR CP(s)	CONNECTED EQUIPMENT	SD AND CD FOR CONNECTED EQUIPMENT	WALL CABINETS
4-Wire Tie Trunk	1H009-01 or 1H024-01 and 1H027-01	12 or 335 or 327	Equipment Numbers 32 through 63	24V4 Repeater	97047-01	J1H020A
Attendant Conference or Conference Calling Circuit	1H013-01	Six 329 and Three 256 for Each Circuit	Circuit Number 1 Equipment Numbers 240 through 245 Bay 2 (5A2, 5A10, and 5A18) Circuit Number 2 Equipment Numbers 232 through 237 Bay 2 (5B2, 5B10, and 5B18) Circuit Number 3 Equipment Numbers 224 through 229 Bay 2 (5C2, 5C10, and 5C18)	None	None	None
3A Code Call Circuit	1H026-01	328	Equipment Numbers 44 through 51	3A Code Call Unit Adapted Circuit	66610-01 1H087-01	J1H020E1, L1
Paging Circuit	1H028-01	329	Equipment Numbers 44 through 51	Paging Amplifier		
Recorded Telephone Dictation	1H067-01	330 336	Equipment Numbers 44 through 51 Bay 4 (9A8)	Recorded Telephone Dictation Circuit	65788-01	J1H020C-1, L1

TABLE A (Cont)

CIRCUIT	SD AND CD FOR SWITCH UNIT END	CP(s) REQUIRED IN SWITCH UNIT	SWITCH UNIT LOCATION FOR CP(s)	CONNECTED EQUIPMENT	SD AND CD FOR CONNECTED EQUIPMENT	WALL CABINETS
DID Answering Machine		2	Equipment Number 247	KS-16765,L1 Announcement Set	95826-01	
Transmission Test Line Circuit	1H082-01	Two 141	Equipment Numbers 48 through 247	Milliwatt Generator (Type 71)	95277-01	J1H020A-1, L1
Additional Power Failure Station Circuits	1H017-01			229B Key Telephone Unit	Part of 69288-01	

2.03 The overall dimensions of the cabinet are 2 feet 1-1/4 inches wide, 11 inches deep, and 2 feet 11-1/4 inches high. Maintenance space of approximately 2-1/2 feet deep and 3 feet wide is required in the front of the cabinet (see Fig. 1).

2.04 All leads interconnecting the units in the cabinet are in a local cable provided with the cabinet. Inside wiring cable is used to extend the circuitry from the wall cabinet to the cross-connecting terminal, where cross-connections are made as required.

2.05 Optional features associated with the wall cabinet consist of the quantity of circuits ordered to be furnished wired and equipped or equipped locally. See Table C.

2.06 A circuit pack for the type of trunk circuit being connected is required in the assigned equipment location of the switch unit as follows:

(a) Nondial repeating tie trunks—CP 12, using two equipment locations.

(b) Dial repeating tie trunks—CP 335, using two equipment locations.

(c) Foreign exchange and WATS trunks—CP 327, using one equipment location.

Installation and Connections

2.07 Install the J1H020A (18-plate ED-91180-70) cabinet in accordance with Section 463-140-200.

2.08 Figure 2 shows the connections required between the cabinet and the cross-connecting terminal.

2.09 Table D and Figure 3 give wiring connections for the local cable in the wall cabinet. Normally these connections have been made when the cabinet is initially installed. However, Table D and Figure 3 give additional local cable connections required.

3. ATTENDANT CONFERENCE OR CONFERENCE CALLING CIRCUIT

Identification

3.01 Three conference circuits can be installed in each switch unit.

3.02 The No. 1 and No. 2 conference circuits can be controlled from attendant console No. 1, which must be a 1B7 telephone console. These circuits may also be station controlled, depending upon the control unit program. The No. 3 conference circuit will be station controlled. Each circuit requires six paging conference line circuits (CP 329), and three conference circuit amplifiers (CP

TABLE B

TRUNK AND STATION LINE CIRCUIT FUSING

EQUIPMENT NUMBER	LOCATION		POWER CIRCUIT			
			+12V		−48V	
	BAY	TRAY	FUSE DESIG*	FUSE AMP	FUSE DESIG*	FUSE AMP
8, 9, 12, 13	3	14	16A	1 1/3		
10, 11, 14, 15	3	14	17A	1 1/3		
16, 17, 20, 21, 24, 25, 28, 29	3	18	18A	1 1/3		
18, 19, 22, 23, 26, 27, 30, 31	3	18	19A	1 1/3		
32, 33, 36, 37, 40, 41, 44, 45	3	22	20A	1 1/3	80A	1 1/3
34, 35, 38, 39, 42, 43, 46, 47	3	22	21A	1 1/3	81A	1 1/3
48-63	3	26	14B	1 1/3	76B	1 1/3
64-79	3	30	15B	1 1/3	77B	1 1/3
80-95	3	34	16B	1 1/3	78B	1 1/3
96-111	3	38	17B	1 1/3	79B	1 1/3
112-127	3	42	18B	1 1/3	80B	1 1/3
128-143	4	42	19B	1 1/3	81B	1 1/3
144-159	4	38	20B	1 1/3	82B	1 1/3
160-175	4	34	21B	1 1/3	83B	1 1/3
176-191	4	30	22B	1 1/3	84B	1 1/3
192-207	4	26	23B	1 1/3	85B	1 1/3
208-223	4	22	24B	1 1/3	86B	1 1/3
224-239	4	18	25B	1 1/3	87B	1 1/3
240-247	4	14	26B	1 1/3	88B	1 1/3

* A fuses are in bay 3. B fuses are in bay 4.

256). See Section 240-201-201 for location of circuit packs in the switch unit.

3.03 Figure 4 shows the connections of control wiring from attendant console No. 1 and the terminals between which straps are connected for the three conference circuits. The locations in which the CPs for each circuit are installed are also shown in this figure.

3.04 Terminal designations at the cross-connecting terminal should indicate conference circuit No. 1 (CONF CKT 1), No. 2, and No. 3 as required.

4. CODE CALL CIRCUIT AND RECORDED TELEPHONE DICTATION CIRCUIT

Mounting

4.01 The code call circuit and the recorded telephone dictation circuit may be mounted in a cabinet or in a relay rack. Cabinet J1H020C-1, List 1 (ED-91194-72, Group 17) may be used for either and is arranged to mount on a wall. When mounting the cabinet on the floor, an ED-91180-70, Group 29 insulating base should be used.

4.02 The overall dimensions of the cabinet are 2 feet 1-1/4 inches wide, 11 inches deep, and

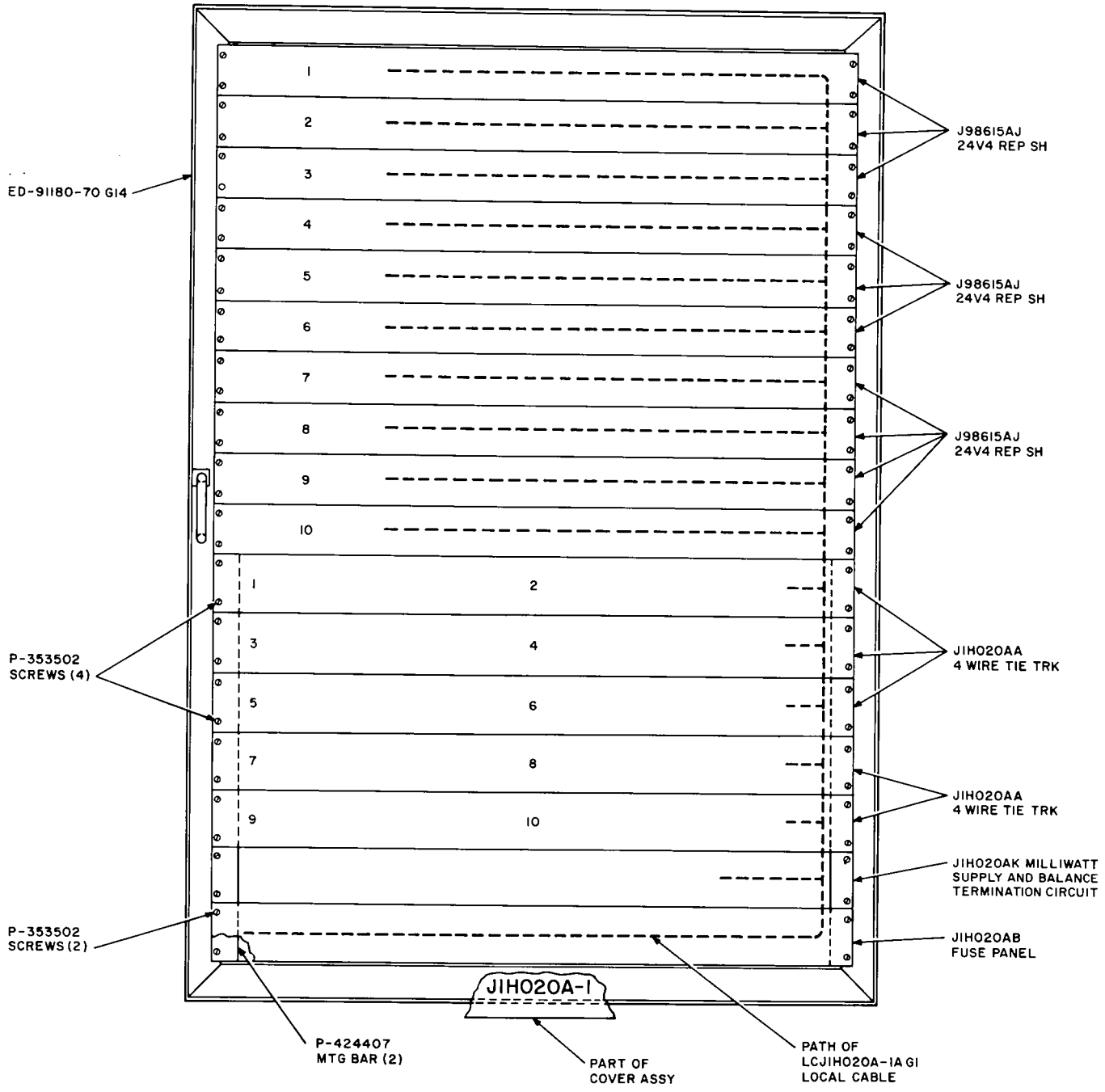


Fig. 1—J1H020A Wall Cabinet—Location Diagram

1 foot 11-1/8 inches high. Maintenance space of approximately 2-1/2 feet in depth and 3 feet in width is required in front of the cabinet.

4.03 Install the J1H020C-1, List 1 (11-plate ED-91194-72) cabinet in accordance with Section 463-140-200.

Code Call Circuit

4.04 The code call circuit requires a 3A code call or suitable code call supplied by the customer and a code call or paging amplifier adapter circuit (SD-1H087-01) which is mounted in the wall cabinet or relay rack. A CP 328 which is installed in the

TABLE C

4-WIRE TRUNK CIRCUIT EQUIPMENT SUMMARY

UNIT CODE	UNIT LIST	QUANTITY	DESCRIPTION
J1H020A	1	1	One cabinet wired for ten 4-wire tie trunks and repeaters and equipped with one fuse panel unit.
J1H020AA	1	5 max.	4-wire tie trunk unit (for nondial repeating trunks) (two circuits per unit).
	2	10 max.	Required in addition to List 1 to arrange one 4-wire tie trunk for use with dial repeating trunk (max. two List 2 per List 1).
J98615AJ	2, B, C	10 max.	24V4 repeater shelf arranged for 48-volt operation. (See Note.)

Note: 227-type amplifiers, 849-type networks, 1-type terminal set, 89-type resistors, and 359-type equalizers are required in addition to List 2, B, C to meet job requirements.

switch unit is also required. Installation must be coordinated with the control unit installation of the SD-1H066-01 circuit, which includes trunk logic circuit J1H005AB at the trunk control frame, and trunk relay circuit J1H005AX at a trunk relay frame.

4.05 Connection and possible equipment assignments for the 3A code call circuit are shown in Figure 5.

4.06 If a customer owned code call circuit is used that is not compatible with the 1A switch unit, interface trunk circuit J58824 may be required. Bell System Practice AA355.014 covers the necessary equipment information. Circuit information is described in SD-66926-01, Issue 2.

Recorded Telephone Dictation Circuit

4.07 Each recorded telephone dictation circuit requires a recorded telephone dictation trunk SD-65788-01 (J58827C-1, List 1 for rotary dial only or J58827D-1, List 1 for rotary dial and TOUCH-TONE®) which connects to the customer equipment (see Section 473-130-201). Adapter circuit SD-1H067-01, FS2 (J1H020AE-1, List 1 for first unit and J1H020AE-1, List 2 for each additional unit) is also required. These are mounted in a cabinet or relay rack. A CP 336 at location 9A8 of bay 4 is required for the recorded telephone dictation circuit and a CP 330 (equipment positions 44 through 51 are available) for each recorded telephone dictation trunk. All CPs are located in the switch unit.

4.08 Figure 6 shows the connections required at the cross-connecting terminal for the possible equipment assignments.

5. PAGING CIRCUIT

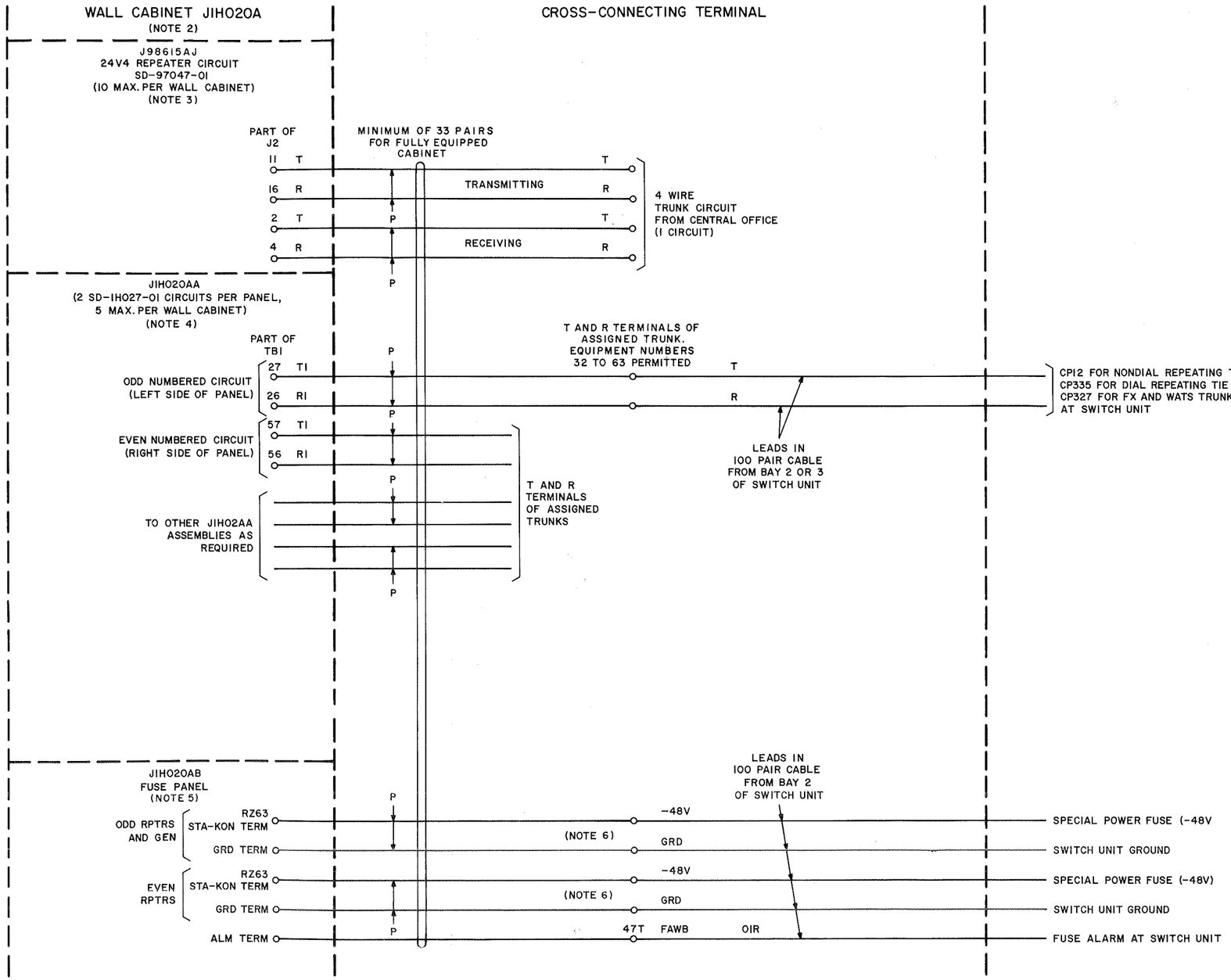
5.01 The paging circuit requires CP 329 at the switch unit and a suitable paging system supplied by the customer.

5.02 If a paging circuit which is not compatible with the 1A switch unit is used, interface trunk circuit J58824 may be required. Bell System Practice AA355.014 covers the necessary equipment information. Circuit information is described on SD-66926-01, Issue 2.

5.03 Figure 7 shows the connections required at the cross-connecting terminal for the possible equipment assignments.

6. DID ANSWERING MACHINE

6.01 The DID answering machine circuit requires a KS-16765, List 1 announcement circuit



NOTES:

1. SWITCH UNIT WIRING MUST BE PER SD-1H001-01 ISSUE 3A OR LATER.
2. INTERNAL WIRING OF WALL CABINET IS BY LOCAL CABLE LCJ1H020A-1A GI.
3. J98615AJ 24V4 REPEATER SHELF PLUS 227 TYPE AMPLIFIERS, 849 TYPE NETWORKS, 1 TYPE TERMINAL SET, 89 TYPE RESISTORS AND 359 TYPE EQUALIZERS AS NEEDED FOR EACH CIRCUIT.
4. J1H020AA, LIST 1, INCLUDES 2 CIRCUITS FOR USE WITH NONDIAL REPEATING TIE TRUNK CIRCUITS. FOR EACH DIAL REPEATING TIE TRUNK CIRCUIT, J1H020AA, LIST 2 (A RELAY PLUS WIRING) MUST BE INCLUDED IN ADDITION TO LIST 1. LIST 2 IS SUPPLIED FOR CIRCUIT 1 (ODD) OR CIRCUIT 2 (EVEN) OR BOTH AS REQUIRED. STRAPPING ON TB1 OF J1H020AA IS AS FOLLOWS:

Y OPTION FOR CIRCUITS WITH J1H020AA, LIST 2 – DIAL REPEATING TIE TRUNKS

Z OPTION FOR CIRCUITS WITHOUT J1H020AA, LIST 2 – NONDIAL REPEATING TIE TRUNKS

CIRCUIT	FOLLOWING TERMINALS STRAPPED FOR OPTION	
	Y	Z
ODD-NUMBERED CIRCUIT (LEFT)	12 & 21 18 & 28 26 & 16	12 & 22 18 & 27 26 & 17
EVEN-NUMBERED CIRCUIT (RIGHT)	42 & 51 48 & 58 56 & 46	42 & 52 48 & 57 56 & 47

5. FOR EACH REPEATER CIRCUIT INSTALLED REMOVE THE 72A DUMMY FUSE AND INSTALL 70G FUSE AND KS-14174, LIST 7 DESIGNATION PIN.
6. SPECIAL POWER (-48V) AND GROUND AVAILABLE AT THE CROSS-CONNECTING TERMINAL ARE AS FOLLOWS:

CIRCUIT	SWITCH UNIT FUSE	BAY 2 CABLE BINDER COLOR	LEAD COLOR		TERMINAL	
			-48V	GRD	-48V	GRD
1	88A	GREEN	G1R	G2R	48T	48R
2	89A	GREEN	BR1R	BR2R	49T	49R
3	90A	GREEN	S1R	S2R	50T	50R
4	91A	BLUE	S1Y	S2Y	20T	20R
5	92A	BLUE	BR1Y	BR2Y	19T	19R
6	93A	BLUE	G1Y	G2Y	18T	18R

Fig. 2—4-Wire Trunk Circuit Connections

TABLE D

LOCAL CABLE CONNECTIONS FOR J1H020A WALL CABINET

CONNECTION			WIRE DESIG	WIRE COLOR	DESIGNATION AND REMARKS		
EQUIPMENT	CONN	TERM.			EQUIPMENT	CONN	TERM.
Odd-Numbered 24V4 Repeater Circuits	518AM JK (2-WIRE IN)	4 6	T R	BL W	4-wire tie trunk circuit having circuit of same number (Fig. 1)	TB1-	18 17 *
	KS-19017 (J3)	Unmarked (Note) 15	BAT. GRD	R-O BK	Fuse panel (Fig. 3). Uses 22BW wire.		
	903A (J1)	8 9 10 11 14 15	B A NR NT B1 A1	BL W O O-W W BL	4-wire tie trunk circuit having circuit of same number (Fig. 1)	TB1-	25 15 * 23 13 * 24 14 *
Even-Numbered 24V4 Repeater Circuits	518AM JK (2-WIRE IN)	4 6	T R	O O-W	4-wire tie trunk circuit having circuit of same number (Fig. 1)	TB1-	48 47 *
	KS-19017 (J3)	Unmarked (Note) 15	BAT. GRD	R-O BK	Fuse panel (Fig. 3). Uses 22BW wire.		
	903A (J1)	8 9 10 11 14 15	B A NR NT B1 A1	O O-W G G-W BR-W BR	4-wire tie trunk circuit having circuit of same number (Fig. 1)	TB1-	55 45 * 53 43 * 54 44 *
4-Wire Tie Trunk Circuit	TB1-	11	GRD	BK	Fuse panel (Fig. 3). Uses 22BW wire.		

Note: BAT connection is to unmarked terminal between terminals 7 and 9 of KS-19017 connector.

* Pair

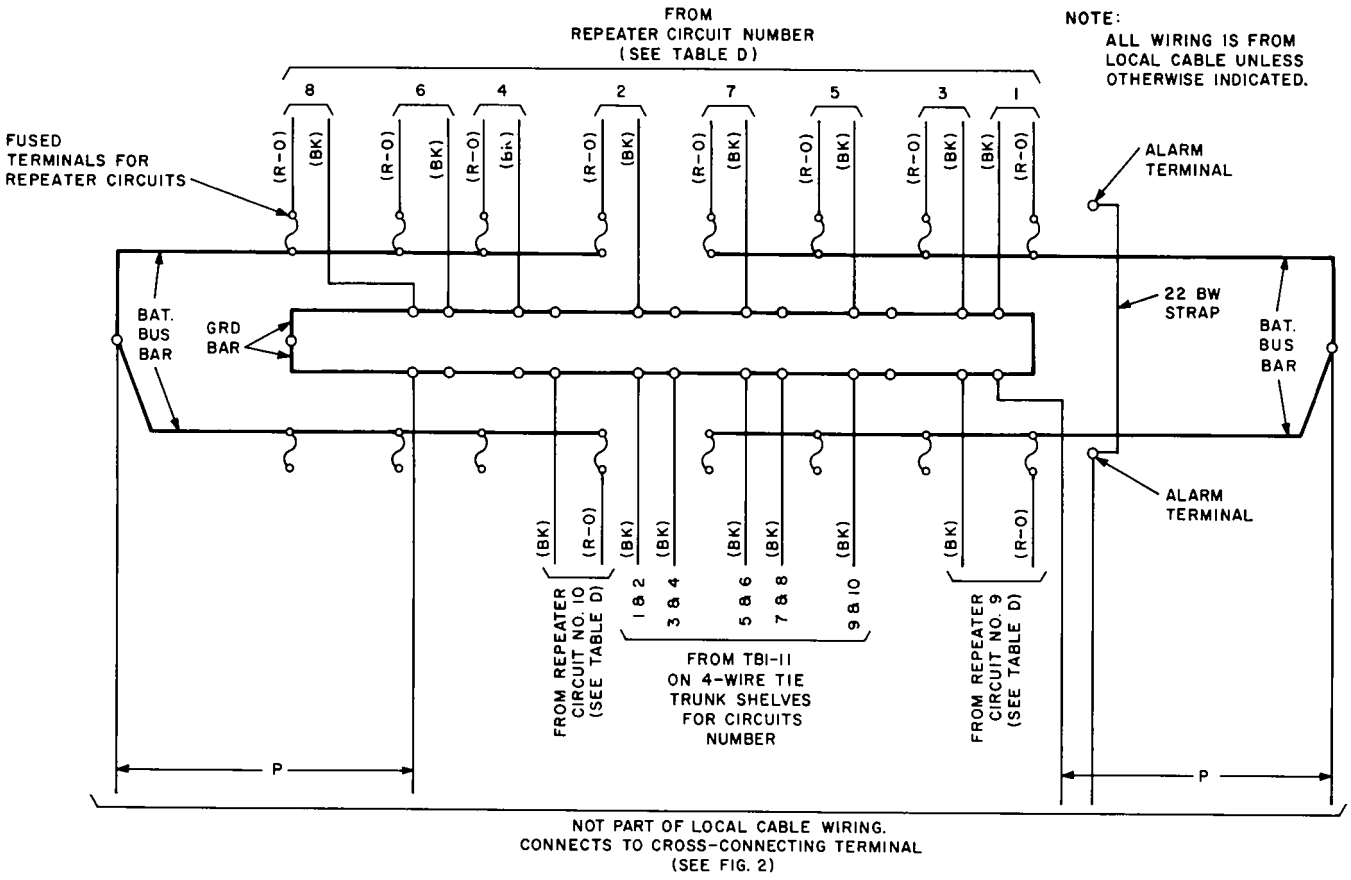


Fig. 3—Terminals of J1H020AB Fuse Panel Showing Wiring Connections

mounted externally to the switch unit and a CP 2 installed in equipment position 247 of the switch unit.

6.02 Section 514-210-200 describes installation and connections for the announcement set. Figure 8 shows the connections between the announcement circuit and the cross-connecting terminal.

7. TRANSMISSION TEST LINE CIRCUIT

Identification

7.01 The basic test line circuit requires two CPs 141 at the switch unit and a jack-ended test line circuit SD-1H082-01 FS2 (J1H020AJ, List 1) located at the J1H020A wall cabinet.

7.02 The milliwatt supply and balanced termination circuit SD-1H082-01 FS3 (J1H020AK, List 1) located at the J1H020A wall cabinet is optional equipment associated with the basic transmission test line circuit.

7.03 Figure 9 shows the connection of control wiring from the switch unit to the jack-ended test line circuit and the cross-connecting terminals. Wiring connection for the optional equipment and possible locations for the two CPs 141 are also shown in this figure.

8. ADDITIONAL POWER FAILURE STATION CIRCUITS

8.01 For power failure station circuits in addition to the six included with the switch unit, as many as 229B key telephone units can be used to transfer up to 12 additional station lines to central office battery when a power failure occurs at the switch unit. A maximum of three station lines can be transferred by one 229B key telephone unit.

8.02 The 229B key telephone unit should be installed near the cross-connecting terminal.

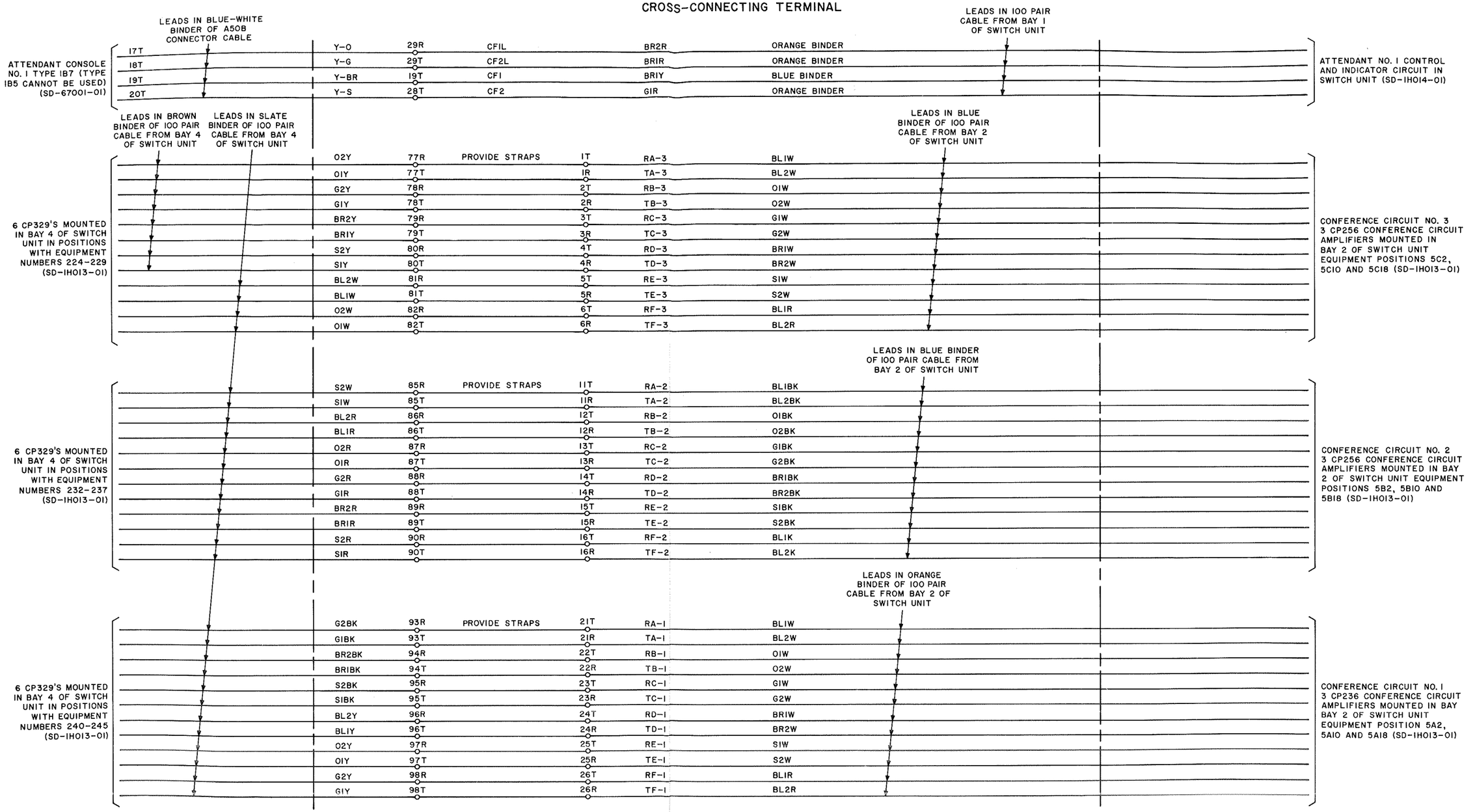
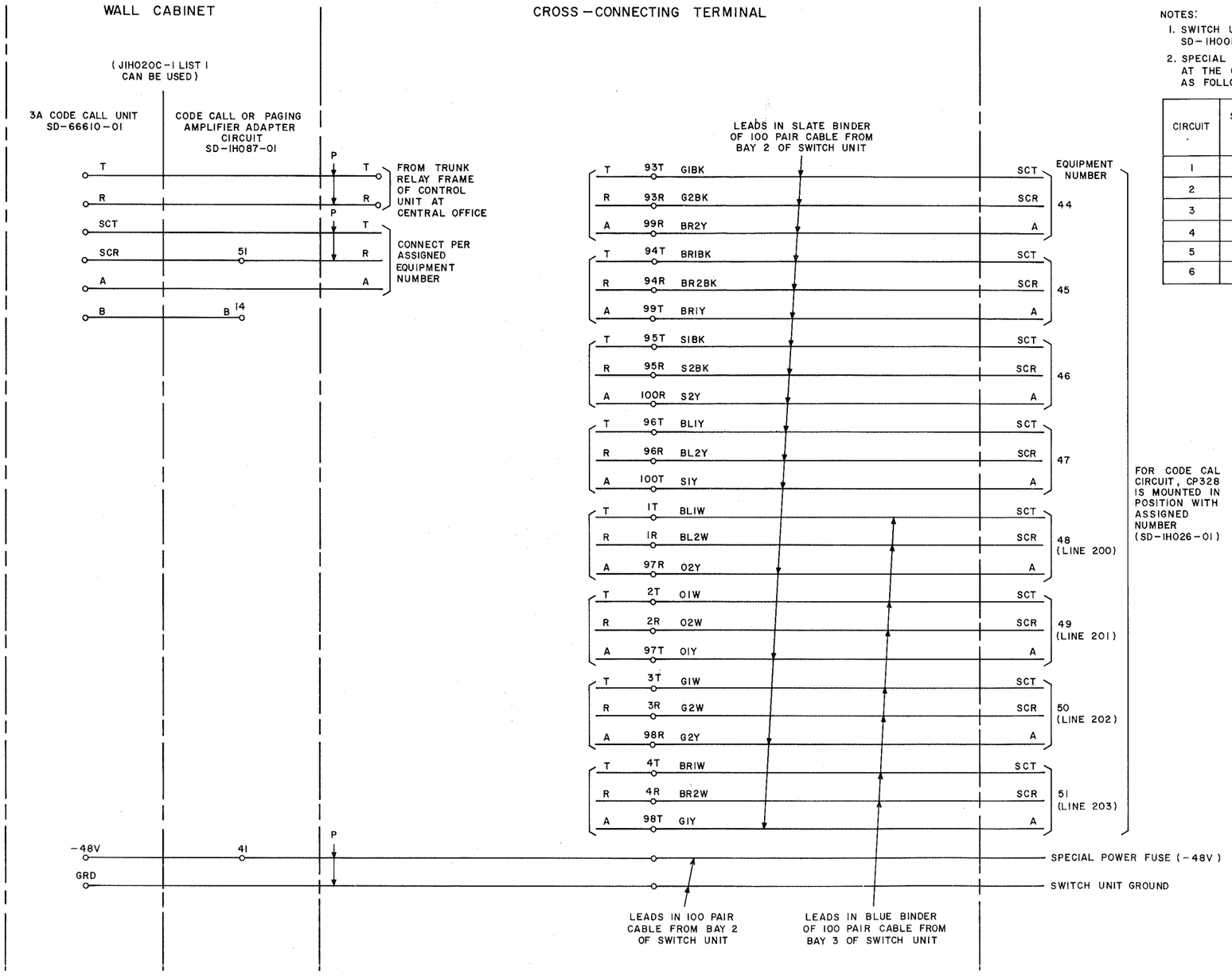


Fig. 4—Attendant Conference or Conference Calling Circuit

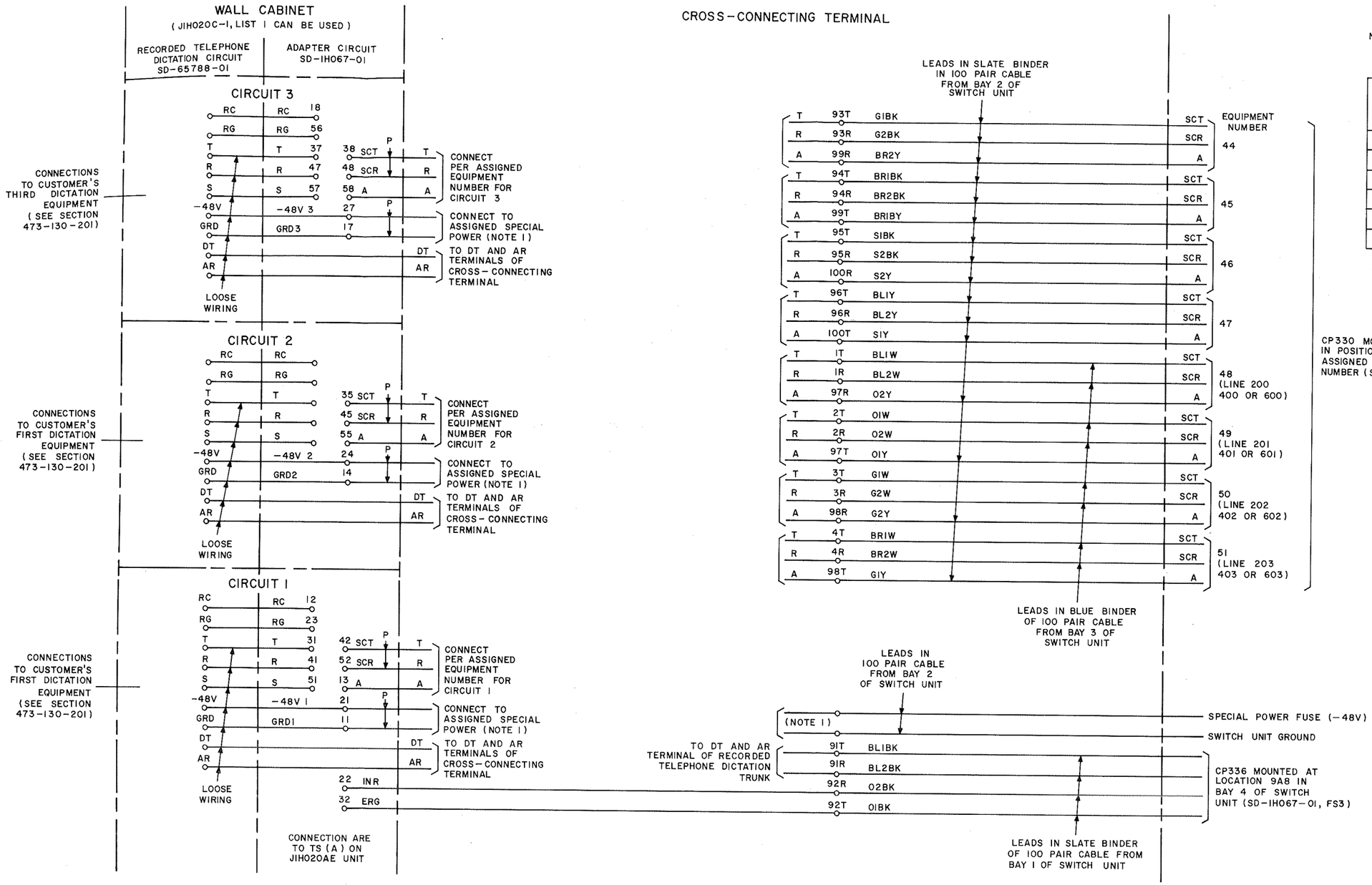


NOTES:

1. SWITCH UNIT WIRING MUST BE PER SD-1H001-01 ISSUE 4A OR LATER.
2. SPECIAL POWER (-48V) AND GROUND AVAILABLE AT THE CROSS CONNECTING TERMINAL ARE AS FOLLOWS:

CIRCUIT	SWITCH UNIT FUSE	BAY 2 CABLE BINDER COLOR	LEAD COLOR		TERMINAL	
			-48V	GRD	-48V	GRD
1	88A	GREEN	G1R	G2R	48T	48R
2	89A	GREEN	BR1R	BR2R	49T	49R
3	90A	GREEN	S1R	S2R	50T	50R
4	91A	BLUE	S1Y	S2Y	20T	20R
5	92A	BLUE	BR1Y	BR2Y	19T	19R
6	93A	BLUE	G1Y	G2Y	18T	18R

Fig. 5—3A Code Call Circuit Connections



NOTES:

1. SPECIAL POWER (-48V) AND GROUND AVAILABLE AT AT THE CROSS-CONNECTING TERMINAL ARE AS FOLLOWS:

CIRCUIT	SWITCH UNIT FUSE	BAY 2 CABLE BINDER COLOR	LEAD COLOR		TERMINAL	
			-48V	GRD	-48V	GRD
1	88A	GREEN	GIR	G2R	48T	48R
2	89A	GREEN	BRIR	BR2R	49T	49R
3	90A	GREEN	SIR	S2R	50T	50R
4	91A	BLUE	SIY	S2Y	20T	20R
5	92A	BLUE	BRIY	BR2Y	19T	19R
6	93A	BLUE	GIY	G2Y	18T	18R

2. SWITCH UNIT WIRING MUST BE PER SD-1M001-01 ISSUE 4A OR LATER.

Fig. 6—Recorded Telephone Dictation Circuit Connections

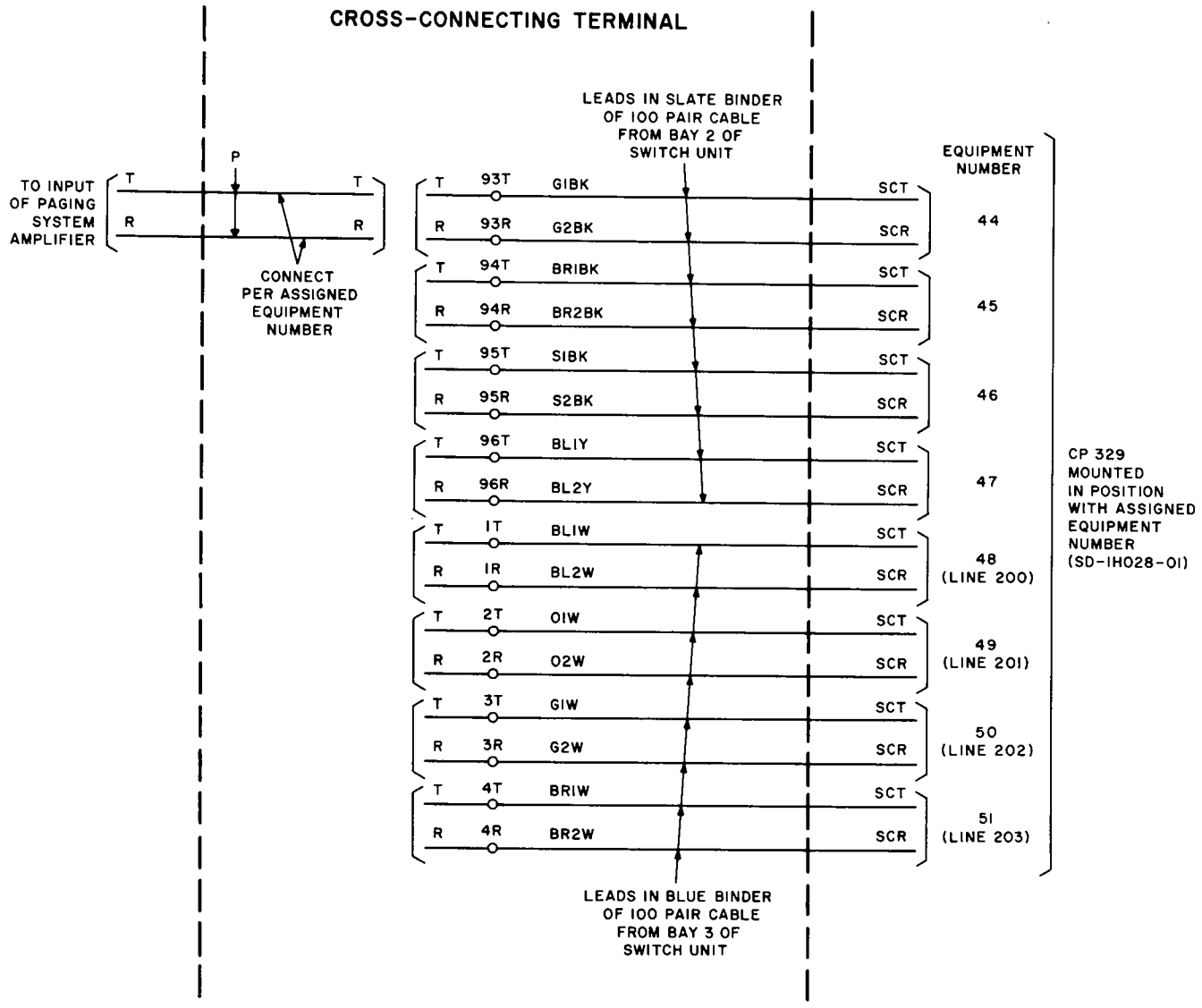


Fig. 7—Paging Circuit Connections

Power for the unit is supplied from the switch unit. Connections for the power failure station circuits are shown in Figure 10.

8.03 A ground start key is required for stations designated as power failure stations.

8.04 Power failure stations cannot be equipped with TOUCH-TONE dials unless the central office is equipped to receive TOUCH-TONE signals.

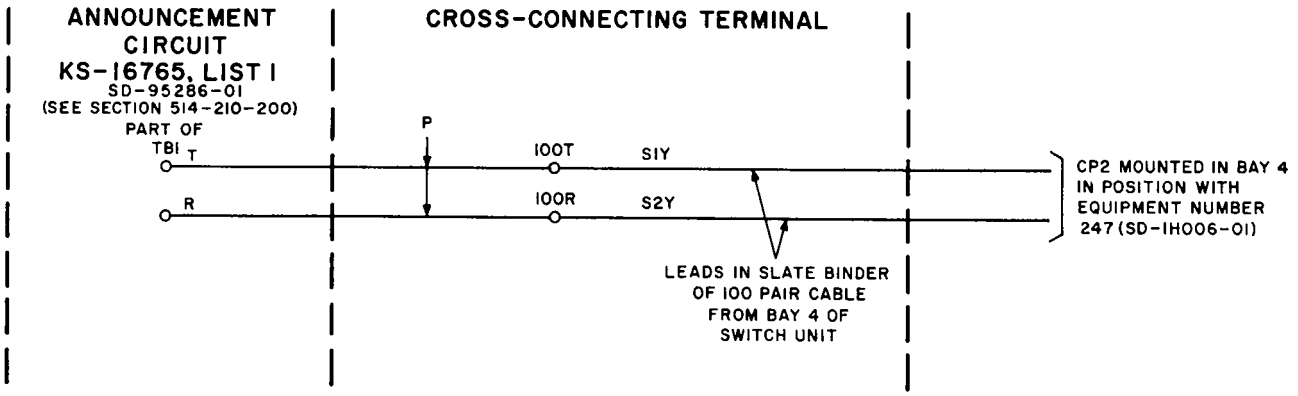


Fig. 8—DID Answering Machine Connections

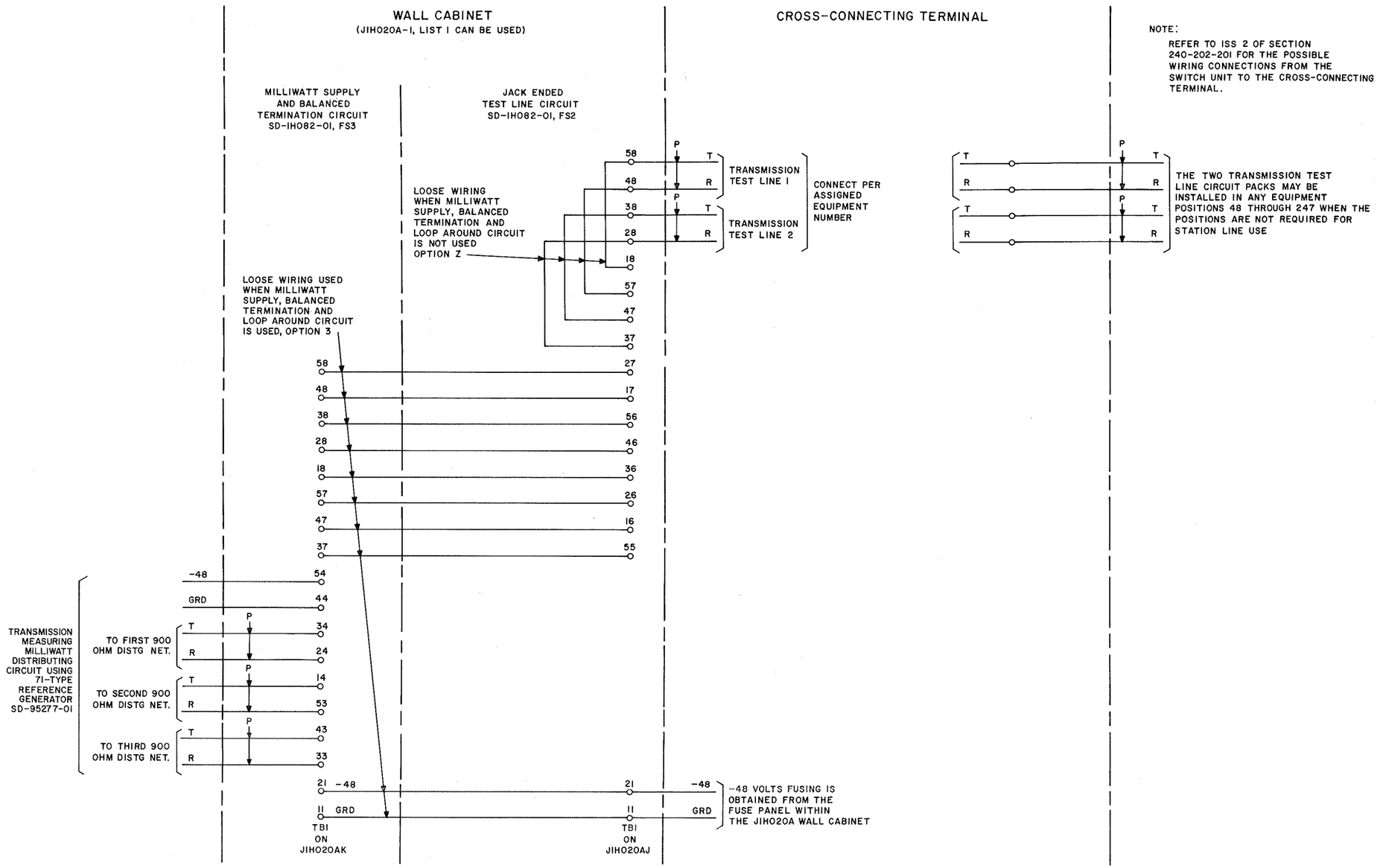


Fig. 9—Transmission Test Line Circuit Connections

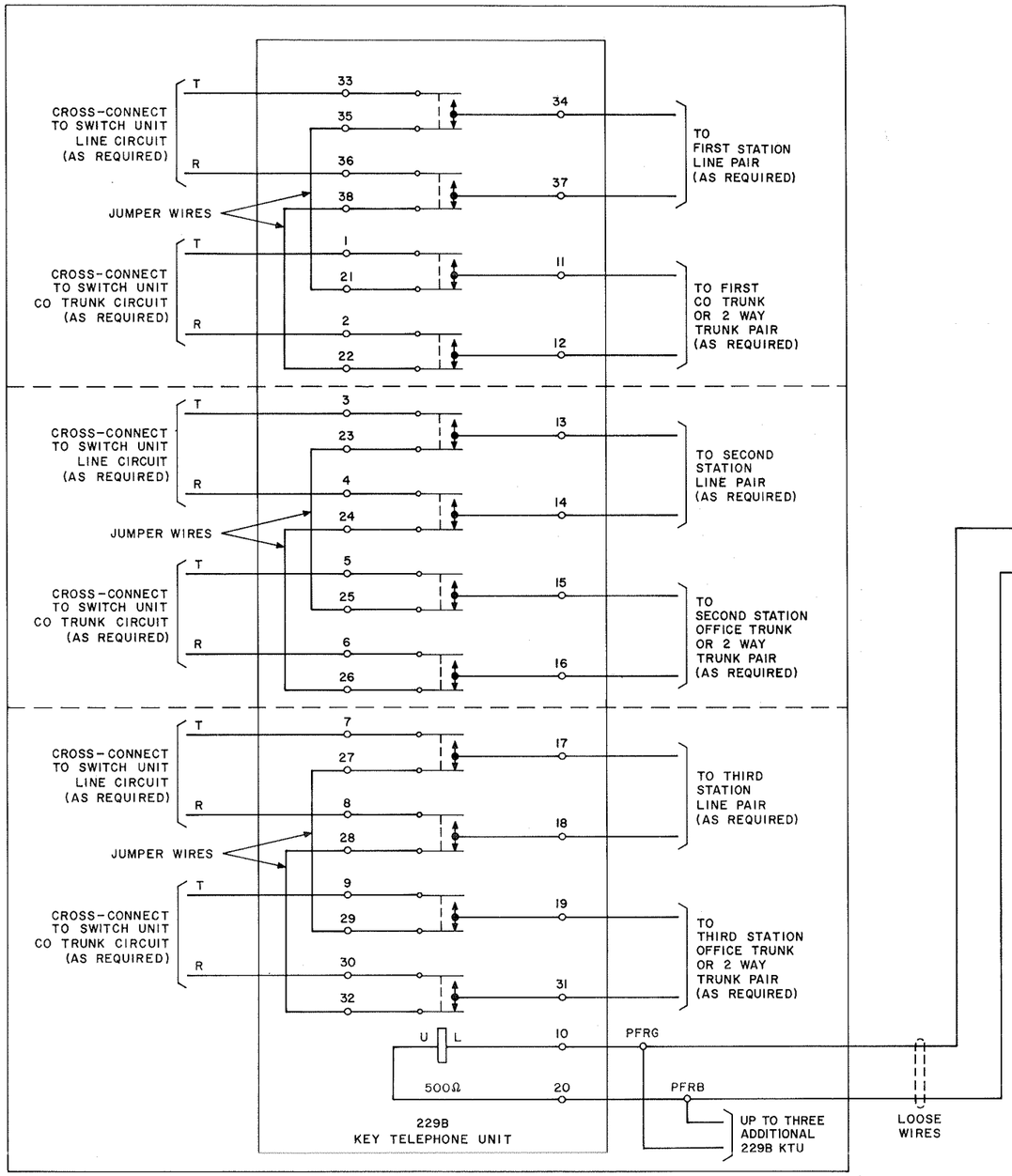


Fig. 10—Additional Power Failure Station Circuits