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AT&TCO Standard
 50A CUSTOM
 IDENTIFICATION, INSTALLATION,
 CONTENTS

IDENTIFICATION, INSTALLATION, CONNECTIONS, AND INSTALLATION TESTS

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NOTICE

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1. GENERAL

1.01 This section covers identification, installation, connections, and testing of the 50A Customer Premises System (CPS).

1.02 This section is reissued to:

- Further define the interface of 50A CPS and No. 2 Electronic Switching System (ESS) central office (CO). Changes required to Fig. 5, 12, and 14, Sheet 2
- Change 840343339 network assembly to 841226038 network assembly which is used to delay hold release when 429B key telephone units (KTUs) are used in the system. Changes required to Fig. 19
- Identify 400G KTU as a replacement for 400D KTU. Changes required to Fig. 10, 17, 18, and Table A
- Further illustrate Fig. 1 and 3
- Correct Tables B and E.

1.03 The 50A CPS furnishes the attendant(s) facility for private branch exchange (PBX-type) or Centrex-type service. The system is used with

No. 1 and No. 2 ESS CO equipped with the required level of generic program. Minimum program requirements for 50A CPS services are CTX5 Program, Issue 6, for ESS No. 1 and EF-2 Generic Program for No. 2 ESS. Loops (pairs from an ESS CO) connect to console equipment and stations. No switching occurs at the customer location. Switching is done at the CO in response to signals from the customer premises. Equipment located on the customer premises provides supervisory functions and control of the attendant(s) console.

1.04 This issue of the section is based on information from the following drawings:

SD-1E250-01 Issue 1

SD-1E251-01 Issue 1

SD-1E249-01 Issue 1

If this section is to be used with equipment or apparatus reflecting later issues of the drawings, reference should be made to schematic drawings (SDs) and circuit descriptions (CDs) to determine the extent of the changes and the manner in which the section may be affected.

2. IDENTIFICATION

2.01 The wall-mounted 50A CPS (Fig. 1) consists of two 720A modular panels (Fig. 2 and 3) which will serve up to eight attendant loops. One or two more 720A modular panels may be added to provide a maximum of 14 loops per console. When direct station selection (DSS) and busy lamp field (BLF) are required, a 722A modular panel (Fig. 4 and 5) is required for each 50 stations. The power supply is mounted separately. Table A lists the equipment and apparatus used with the system.

2.02 Features available for the 50A CPS are described in Section 981-300-100.

720A PANEL (Fig. 2 and 3)

2.03 Each fully equipped panel contains:

- (a) KTUs and circuit packs (CPs) that provide system loop and common circuitry.
- (b) A test lamp for each loop that can be used to observe circuit operation.

- (c) A separate fuse (1-1/3 amp) for each loop.
 - (d) A separate fuse for -24V relay battery and two spare fuses.
 - (e) Connecting blocks for cross-connections (Fig. 3).
 - (f) An instruction card.
- 2.04** The panel is 18-1/2 inches high by 8-1/2 inches wide by 6 inches deep.

722A PANEL (Fig. 4 and 5)

- 2.05** Each fully equipped panel contains:
- (a) Connecting blocks for cross-connections (Fig. 5) and five busy lamp circuits furnished in each of the ten column groupings.
 - (b) Four HK6 CPs (Fig. 6) which furnish busy station lamp circuitry when DSS and BLF are provided.
 - (c) Fifty working circuits plus two spares when fully equipped with four HK6 CPs (13 lamp circuits each).
 - (d) A separate fuse (1-1/3 amp) for each HK6 CP plus one spare fuse (70H).
 - (e) A monitor lamp that can be temporarily connected to the L (busy lamp) lead of a circuit to test for a busy station line.
 - (f) An instruction card.
- 2.06** The panel is 18-1/2 inches high by 8-1/2 inches wide by 6 inches deep.

TELEPHONE CONSOLES (Fig. 7 and 8)

- 2.07** The 121-, 131-, and 151-type telephone consoles have the following features:
- TOUCH-TONE® dial (only)

- Modular mounting of keys and dial
- Molded plastic base and housing
- Nonglare faceplate recessed in housing
- D-type, plug-ended, 8-foot mounting cord
- Tone ringer with volume control
- Equipped with supervisory jacks
- Available in black (-03), ivory (-50), and white (-58).

Refer to Section 504-220-151 for additional information on the 121-, 131-, and 151-type consoles.

POWER UNITS

2.08 The 79B1 or 79B2 power units provide an alternative to the 103B power unit for installations without battery reserve, DSS, or BLF. ***When using the 79B1 or 79B2, the console loop resistance is reduced to 20 ohms.*** An M24M cord must be used to connect the 79B1 or 79B2 to the modular panel. One 79B1 or 79B2 can provide power for up to two consoles.

2.09 The 103B power unit (Fig. 9) provides power for a complete system with DSS and BLF. One 103B power unit must be provided for each console. A connector and a plug are provided on the power unit to terminate connector cables from the modular panels and auxiliary power unit. When using the 103B, the console loop resistance is 50 ohms.

2.10 The 104B power unit, when used in conjunction with the 103B power unit, provides optional battery reserve for the console. DSS and BLF do not function during power failure. One 104B power unit must be provided for each 103B power unit.

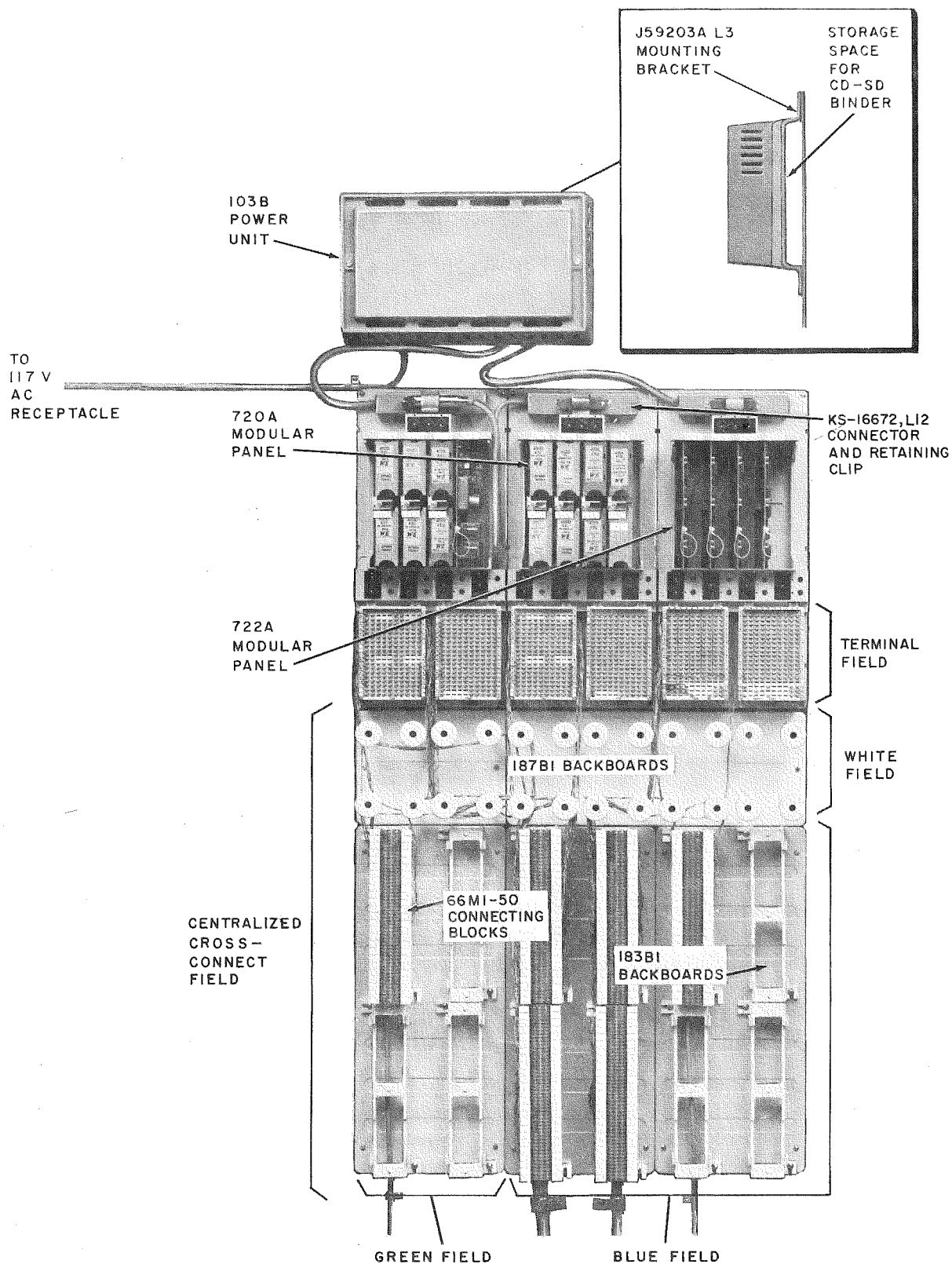


Fig. 1—Typical Wall-Mounted Apparatus

- (c) A separate fuse (1-1/3 amp) for each loop.
 - (d) A separate fuse for -24V relay battery and two spare fuses.
 - (e) Connecting blocks for cross-connections (Fig. 3).
 - (f) An instruction card.
- 2.04** The panel is 18-1/2 inches high by 8-1/2 inches wide by 6 inches deep.

722A PANEL (Fig. 4 and 5)

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 - (b) Four HK6 CPs (Fig. 6) which furnish busy station lamp circuitry when DSS and BLF are provided.
 - (c) Fifty working circuits plus two spares when fully equipped with four HK6 CPs (13 lamp circuits each).
 - (d) A separate fuse (1-1/3 amp) for each HK6 CP plus one spare fuse (70H).
 - (e) A monitor lamp that can be temporarily connected to the L (busy lamp) lead of a circuit to test for a busy station line.
 - (f) An instruction card.
- 2.06** The panel is 18-1/2 inches high by 8-1/2 inches wide by 6 inches deep.

TELEPHONE CONSOLES (Fig. 7 and 8)

- 2.07** The 121-, 131-, and 151-type telephone consoles have the following features:
- TOUCH-TONE® dial (only)

- Modular mounting of keys and dial
- Molded plastic base and housing
- Nonglare faceplate recessed in housing
- D-type, plug-ended, 8-foot mounting cord
- Tone ringer with volume control
- Equipped with supervisory jacks
- Available in black (-03), ivory (-50), and white (-58).

Refer to Section 504-220-151 for additional information on the 121-, 131-, and 151-type consoles.

POWER UNITS

2.08 The 79B1 or 79B2 power units provide an alternative to the 103B power unit for installations without battery reserve, DSS, or BLF. ***When using the 79B1 or 79B2, the console loop resistance is reduced to 20 ohms.*** An M24M cord must be used to connect the 79B1 or 79B2 to the modular panel. One 79B1 or 79B2 can provide power for up to two consoles.

2.09 The 103B power unit (Fig. 9) provides power for a complete system with DSS and BLF. One 103B power unit must be provided for each console. A connector and a plug are provided on the power unit to terminate connector cables from the modular panels and auxiliary power unit. When using the 103B, the console loop resistance is 50 ohms.

2.10 The 104B power unit, when used in conjunction with the 103B power unit, provides optional battery reserve for the console. DSS and BLF do not function during power failure. One 104B power unit must be provided for each 103B power unit.

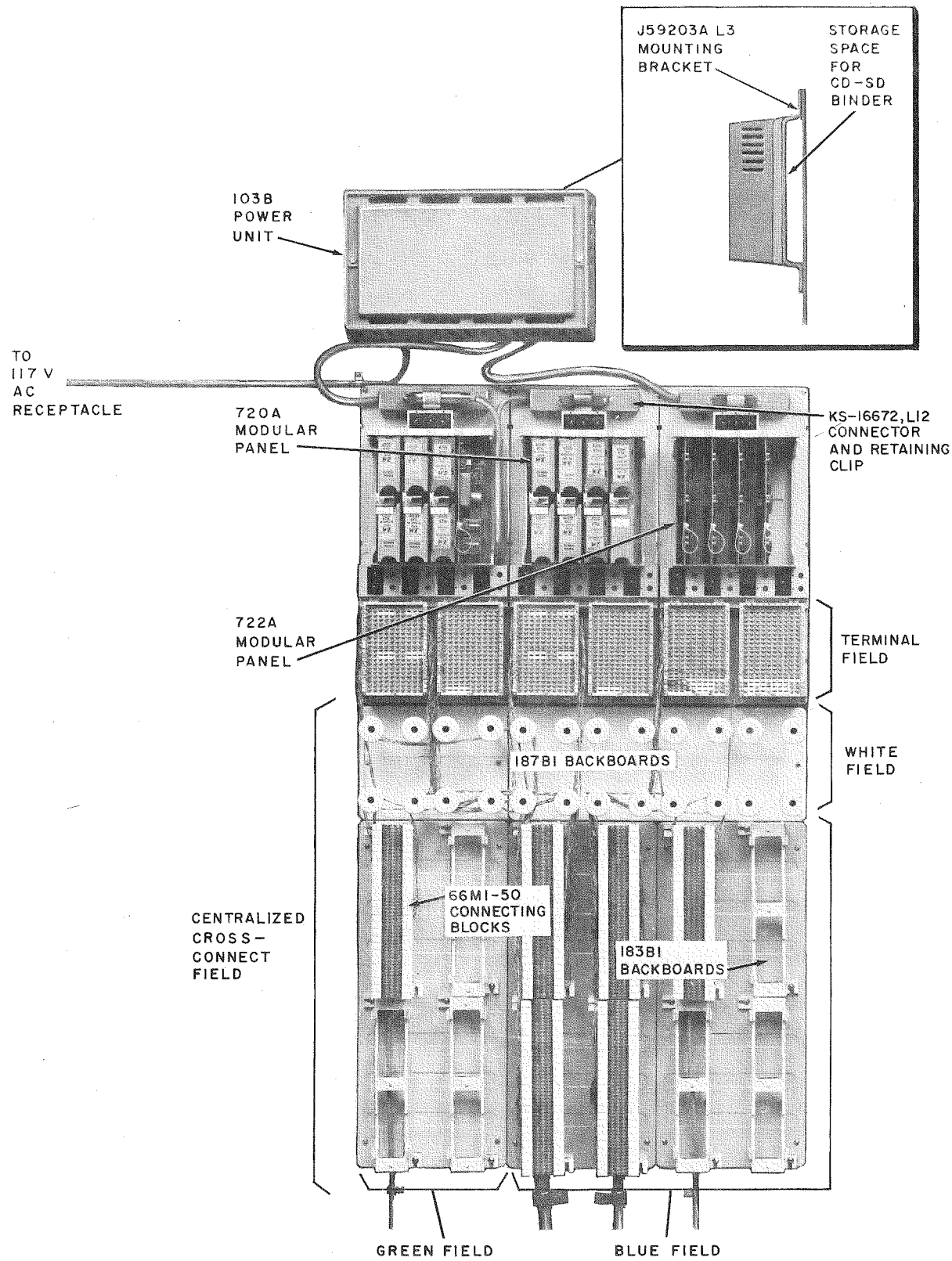


Fig. 1—Typical Wall-Mounted Apparatus

TABLE A
EQUIPMENT AND APPARATUS SUMMARY

CODE	DESCRIPTION AND FUNCTION
J59203A, List 1	Assembly, wiring, and equipment for two 720A modular panels (basic) used with attendant common and loop circuits 0-7. Furnished with cross-connect terminal fields and cables equipped with plugs used to extend to connectors on preceding 720A panels for power, or to 103B or 104B power unit if the first 720A panel in a line-up. Provide one J59203A, List 1 assembly per console.
J59203A, List 2	Assembly, wiring, and equipment for one 720A modular panel (supplementary) used with plug-in attendant common and loop circuits 8-11 or 12 and 13. Furnished with cross-connect terminal field and cable equipped with plug used to extend to connector on preceding 720A panel for power. Provide one (for loops 8-11) or two (for loops 8-13) per console.
J59203A, List 3	Mounting bracket used to mount a 79B1, 79B2, or 103B power unit. Provides space to hold CD and SD binder H320-259 which is included. Provide one per system.
J59203B, List 1	Assembly, wiring, and equipment for one 722A modular panel for 50 busy lamp circuits. Used with HK6 plug-in CPs which provide the attendant(s) with busy lamp indications. Furnished with cross-connect terminal field and cable equipped with plug used to extend to connector on preceding panel for power (or to 103B power unit when used as the first 722A panel in a line-up). Minimum of one is required for each console (with DSS or BLF) in a multiple console installation, since each console is separately powered (via 103B power unit) through a separate 722A panel.
400D	KTU used to provide ringing detection, hold, and lamp control functions. Plugs in connector J1A, J1B, J2A, or J2B of 720A panel. Maximum of 14 per attendant. Provide one per loop.
400G	KTU used to provide ringing detection, hold, and lamp control functions. Plugs in connector J1A, J1B, J2A, or J2B of 720A panel. Maximum of 14 per attendant. Provide one per loop.
429B*	KTU used to provide lamp rate and hold release timing. Plugs in connector J3A or J3B of 720A panel. Provide one per two loops. When 429B KTU is provided, an 841226038 network must be installed on each 400D KTU. Do not use 429B KTU with 400G KTU.
430A	KTU used to generate flutter lamp indication. Functions with 429B KTU or AE34 CP. Plugs in connector J4A of the <i>second</i> 720A panel only. Provide one per console.
HK5	CP provides common control and loop control for the <i>first</i> four loops between the telephone console and the CO. Plugs in connectors J4A and J4B of the first 720A panel. Provide one per console.

* Provided in early 50A CPS.

TABLE A (Cont)

EQUIPMENT AND APPARATUS SUMMARY

CODE	DESCRIPTION AND FUNCTION
HK6	Provides DSS busy lamp circuits that furnish steady lamp indications to the console(s) when stations are busy. Plugs in connectors J1A-J1B, J2A-J2B, J3A-J3B, or J4A-J4B of the 722A panel. Furnish 1 per 13 stations. Maximum of 4 per 722A panel (50 working and 2 spare circuits).
AE32	CP extends loop control only for each <i>additional</i> four loops between the attendant console and the CO. Plugs in connector J4B of all but the first 720A panel. Provide one per <i>additional</i> 720A panel.
AE33	CP used to provide a steady TGB lamp indication to a preselected lamp location on the telephone console. Reduces maximum loop capacity of 14 per attendant by 1 for each AE33 beyond 2 furnished, since connector used could otherwise be filled by 400D KTU. Plugs in connector J1A, J1B, J2A, or J2B of any 720A panel. Provide one per TGB circuit assigned from CO.
AE34†	CP used to provide lamp rate and hold release timing. Plugs in connectors J3A and J3B of 720A panel. Provide one per two loops. Used in later systems to provide the same function as the 429B KTU provided in earlier systems.
79B1* or 79B2†	Power unit with self-contained interrupter. Requires a separately ordered M24M cord to connect to the 720A panel; also a power cord must be ordered separately to connect to the customer-provided 117V ac outlet. Provides power for up to two consoles when battery reserve, DSS or BLF, is not required.
103B	Power unit with self-contained interrupter. Requires a separately ordered power cord to connect to customer-provided 117V ac outlet. Provide one power unit per console.
104B	Power unit with self-contained interrupter. Provides battery reserve for 50A CPS (except DSS and BLF) functions during power failure. Reserve battery (KS-20390, List 1) must be ordered separately. Unit connects to 103B power unit with a 2-foot connector cable (furnished). Provide one power unit per console.
KS-20390, List 1	Battery (nickel-cadmium) used in 104B power unit to provide reserve power. Full charge is maintained automatically by a trickle charger in the 104B power unit. Order separately.
M24M	Cord used to connect first 720A panel to 79B1 or 79B2 power unit. Order separately.

* Provided in early 50A CPS.

† Provided in later 50A CPS.

TABLE A (Cont)

EQUIPMENT AND APPARATUS SUMMARY

CODE	DESCRIPTION AND FUNCTION	
P-40J326	1-1/2 Feet	Power cord, 3-conductor used to connect 79B1, 79B2, and 103B power units to customer-provided 117V ac outlet. Order required length.
P-40J327	2 Feet	
P-40J328	4 Feet	
P-40J329	6 Feet	
P-40J099	12 Feet	
121A4T	Telephone console used with 50A CPS without DSS. There are 16 illuminating and 8 nonilluminating keys which furnish control and supervisory functions. Provided with TOUCH-TONE dial only. Handset is separately ordered. Furnished with one 8-foot D150AA-87 mounting cord. Contains JN1 CP used to split a call. Provide one per attendant.	
131A4T	Telephone console, same as 121A4T telephone console, except furnished with a DSS field (and busy lamp indications) for 100 stations. Has one 8-foot D300F-87 mounting cord. Contains JM1 CP used to furnish automatic DSS dialing and call-splitting functions. Provide one per attendant.	
151A4T	Telephone console, same as 121A4T, except furnished with a DSS field (including busy lamps) for 200 stations. Has two 8-foot (D150AA-87 and D300G-87) mounting cords. Contains JM1 CP used to furnish DSS dialing and call-splitting functions. Provide one per attendant.	
G3CR	Handset furnished with 4-foot retractile handset cord equipped with plug. Provide one per telephone console. (See Note.)	
841226038 Network	Used to delay hold release of the 400D KTUs used with 50A CPS to provide a normal hold interval. For early systems using 429B KTUs, four networks are shipped with each 720A panel using 429B KTU.	
KS-13490, List 1	Resistor (10K) required for busy lamp indication from an off-premise station that appears on console BLF. Provide one per off-premise station.	

Note: The 52-, 53-, 60-, or 61-type head telephone set can be substituted if required.

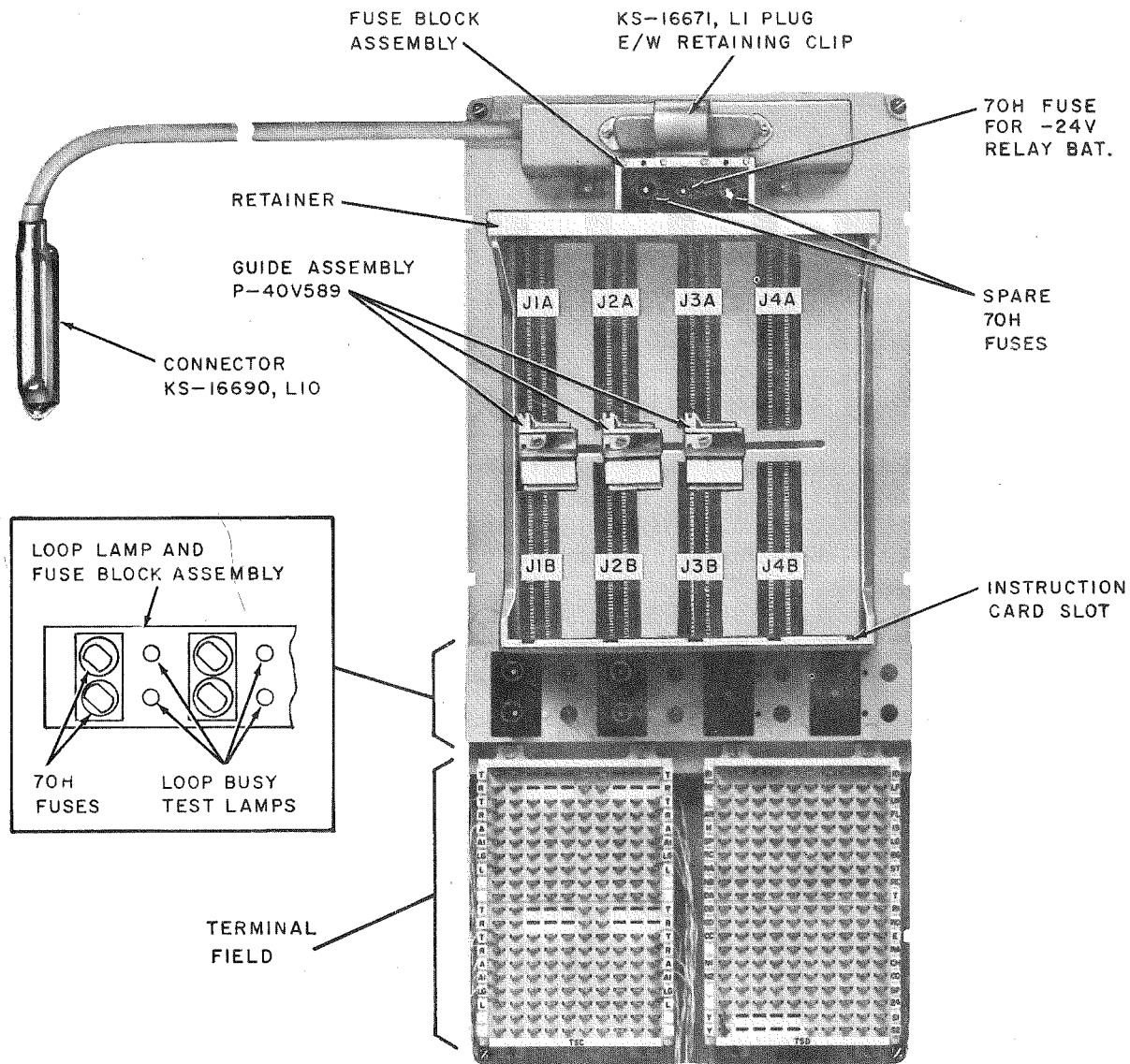
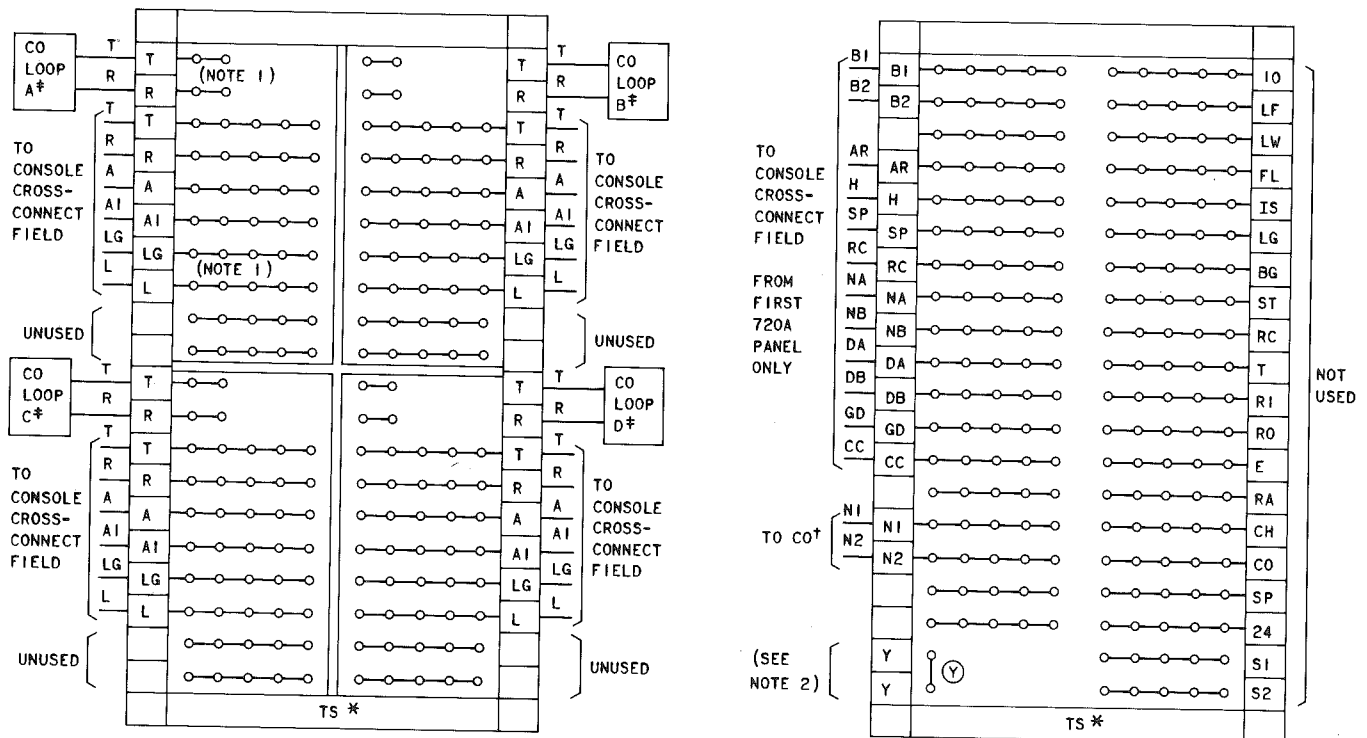


Fig. 2—720A Modular Panel



* STAMP IN FIELD AS FOLLOWS:

720A PANEL	TS DESIG	
	LEFT	RIGHT
0	A	B
1	C	D
2	E	F
3	G	H

†

LOOP	A	B	C	D
	0	1	2	3
	4	5	6	7
	8	9	10	11
	12	13		

† TO CO (GREEN FIELD) FROM FIRST 720A PANEL ONLY.
CAN ALSO BE USED TO BRIDGE A LOCAL BELL ACROSS FIRST LOOP.

NOTES:

1. CONNECT TRUNK GROUP BUSY (TGB) LEADS TO T AND R INSTEAD OF CO LOOP LEADS WHEN TGB FEATURE REQUIRED. USE ANY SPARE LOOP POSITION. CROSS-CONNECT L, LG LEADS TO CONSOLE(S) CROSS-CONNECT (BLUE) FIELD. USE ANY SPARE KEY LAMP FOR TGB. AE33 CP CAN BE INSTALLED IN J1A, J1B, J2A OR J2B OF ANY 720A PANEL.
2. PLACE (Y) STRAP ON LAST 720A PANEL EQUIPPED WITH HK5 OR AE32 CPS

Fig. 3—720A Modular Panel Terminal Field

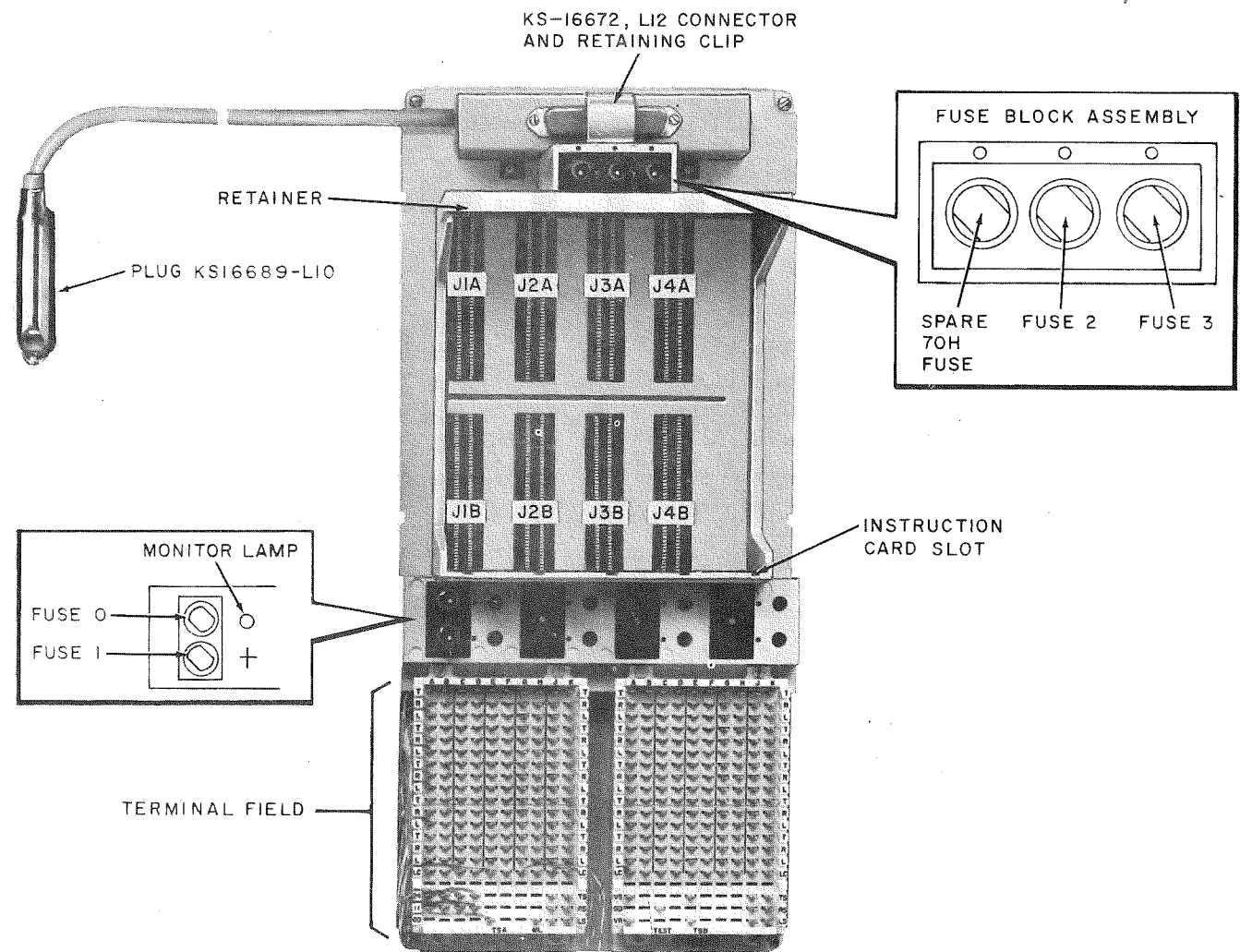
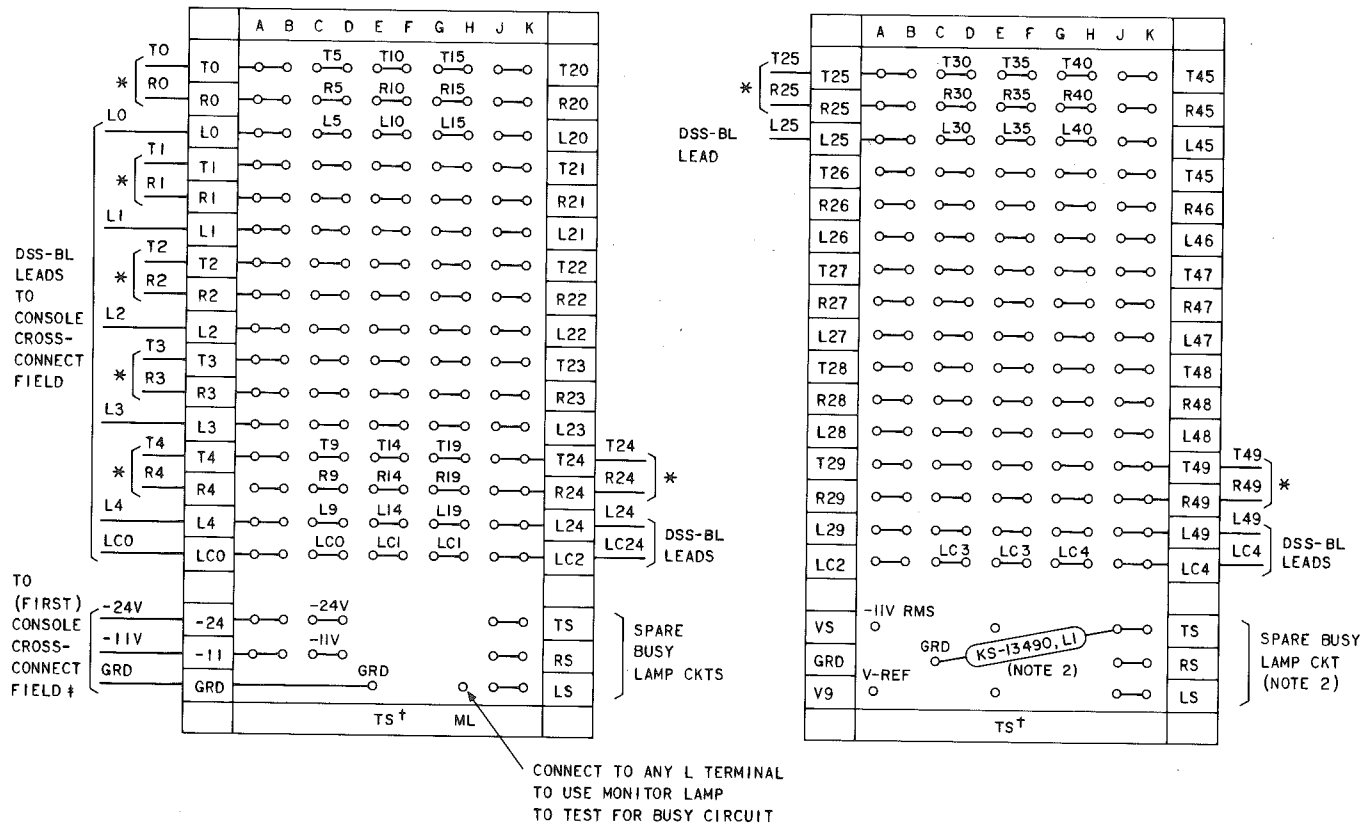


Fig. 4—722A Modular Panel



* BRIDGE TO STATION LOOPS ON BLUE CROSS-CONNECT FIELD

† STAMP IN FIELD AS FOLLOWS:

722A PANEL	TS DESIG	
	LEFT	RIGHT
0	A	B
1	C	D
2	E	F
3	G	H

‡ IF 50A CPS HAS 2 ATTENDANT TELEPHONE CONSOLES
CROSS-CONNECT FOR EACH DSS DIALER FROM
SEPARATELY POWERED 722A PANELS.

NOTES:

1. CIRCUIT NUMBERS AND THOSE SHOWN WIRED OUT ARE TYPICAL.
(0-49, 50-99, 100-149, OR 150-199) CROSS-CONNECT AS REQUIRED.
2. CROSS-CONNECT TS LEAD TO PAIR ASSIGNED FROM NO. 1 OR NO. 2 ESS CO
FOR BUSY LAMP INDICATION FROM OFF-PREMISES STATION.
CROSS-CONNECT LS LEAD TO DSS OR BLF KEY LAMP AT TELEPHONE
CONSOLE(S). PROVIDE AND CONNECT IOK KS-13490, LI RESISTOR
AS SHOWN. THIS ARRANGEMENT MUST BE USED FOR EACH
OFF-PREMISES STATION. FOR INDICATIONS FROM SEVERAL OFF-PREMISES
STATIONS THE RESISTORS MAY BE MOUNTED ON EXTERNAL TERMINAL BLOCKS.

Fig. 5—722A Modular Panel Terminal Field

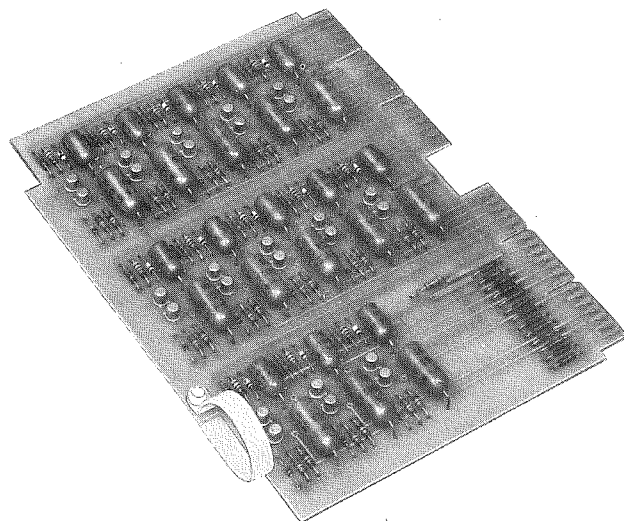


Fig. 6—HK6 Circuit Pack

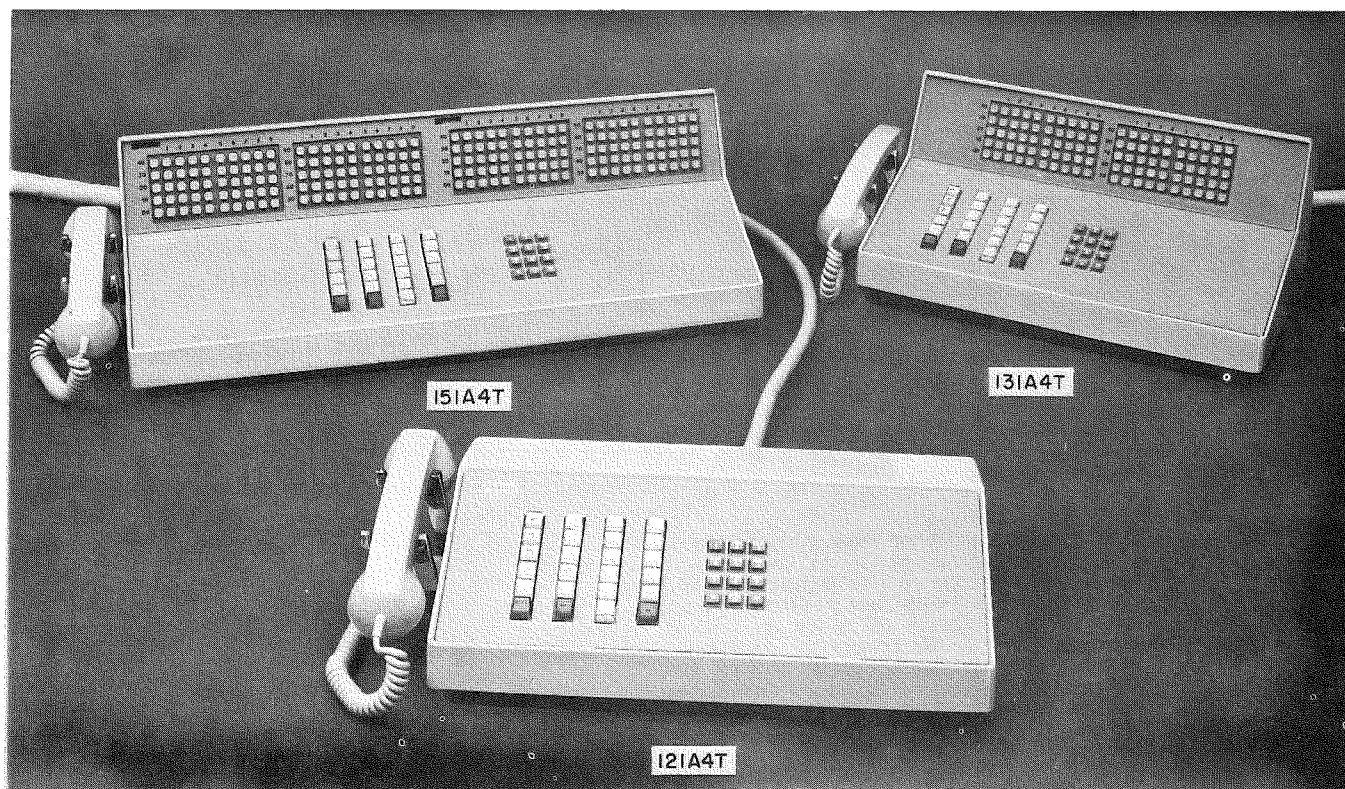
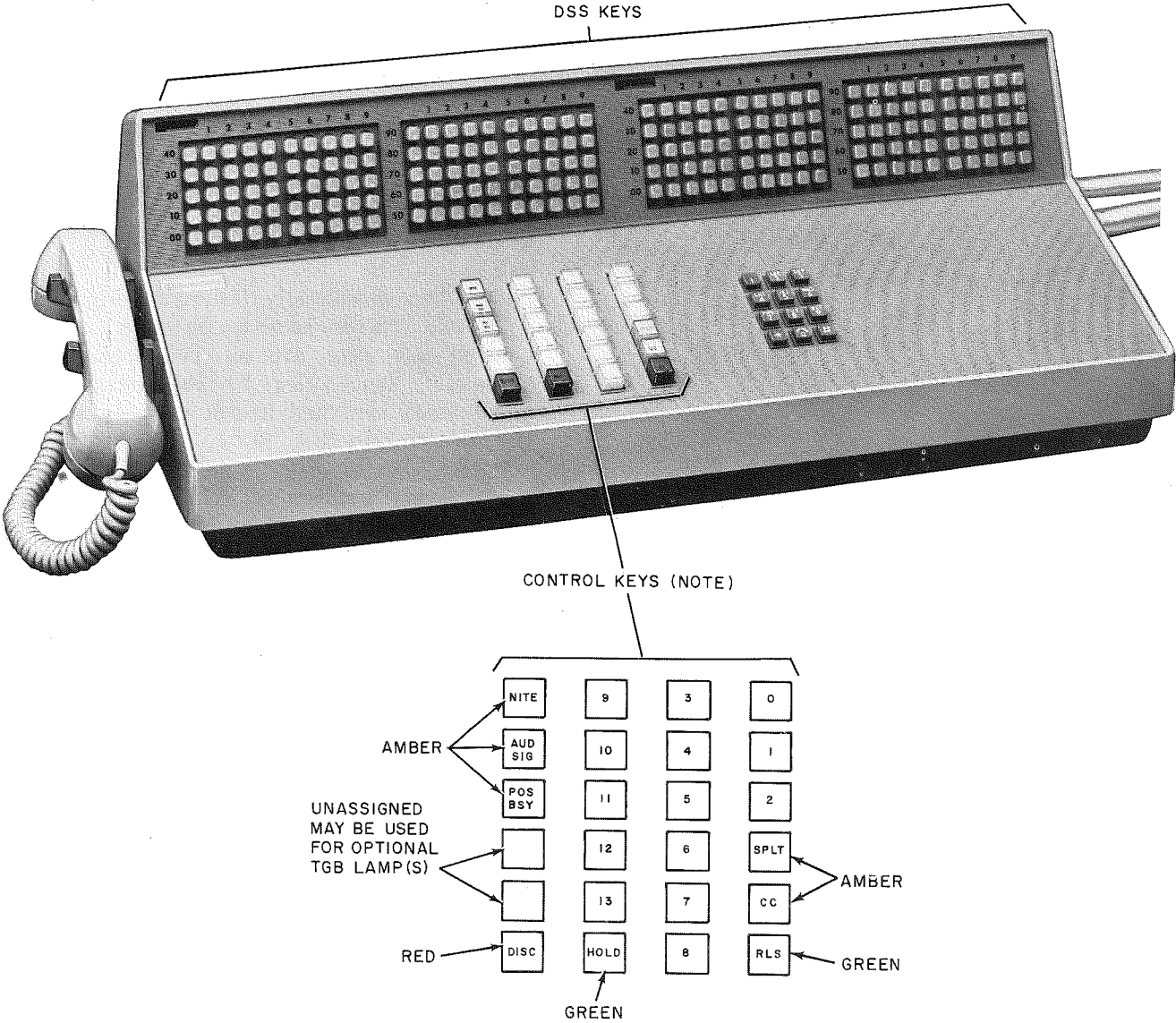


Fig. 7—Telephone Consoles Used With 50A CPS



NOTE:
ASSIGN LOOP KEYS (NUMBERED FOR IDENTIFICATION ONLY) ON A PER JOB BASIS

Fig. 8—Control Key Arrangement—151A4T Telephone Console

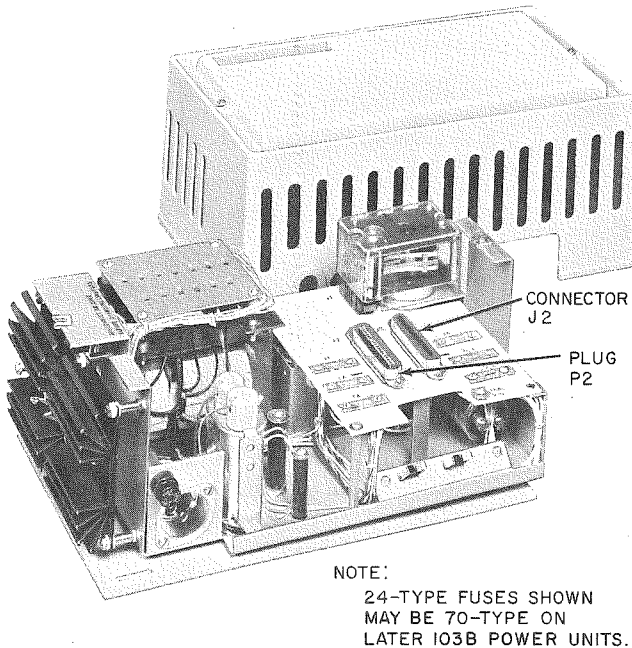


Fig. 9—103B Power Unit

3. INSTALLATION

PLANNING

3.01 Select a wall location (Fig. 10) for mounting apparatus that complies with the following:

- No safety hazards
- Approved by the customer
- Not accessible to possible damage from customer traffic
- Well-lighted, dry, clean, vibration-free, and accessible for maintenance
- Ample space for further growth
- Free from corrosive or oily fumes
- Temperature normally below 110°F
- Close to conduit or duct system used to serve console(s) and stations
- Near an adequate number of customer-provided separately protected 3-wire grounded-type

117V outlets, 6- to 7-feet high (Fig. 11) and not controlled by a switch. Refer to Table A for the available lengths of power cord for the power units.

3.02 The equipment and cabling layout can vary with each installation. Use the panel and cabling block diagram shown in Fig. 12 as a guide.

INSTALLING

3.03 Place console(s) in desired location. Designate all console keys to be used. Clear and colored key caps are shipped loose with the console(s). Install clear key caps on all loop keys and unused keys and install colored key caps on the control keys (Fig. 8).

3.04 Select number of A75A connector cables required (Fig. 13), and install cables between console(s) and the centralized terminal field. Each A75A connector cable is assigned a number (in parentheses) to identify the cable (per console) and to locate the cable in the connection tables in Part 4.

3.05 Mount required modular panels to provide desired services. Use dimensions shown in Fig. 11 as a guide. Horizontal dimensions vary with system requirements. Install separate groups of 720A panels when two consoles are provided. The 722A panels are common to both consoles. Refer to Fig. 10 which shows the largest size systems with two consoles and DSS.

3.06 Mount backboards as required below the modular panels. Mount the required 66M1-50 connecting blocks on the backboards, starting at the left. Two 66M1-50 connecting blocks are required for each A75A connector cable.

3.07 Install the A75A cable(s) to allow the blue-white binder group of the A75A(1) connector cable to be cut down on the left side of block 1 and the green-white binder to be cut down on the right side of block 1. Install the orange-white binder group of the same A75A(1) cable on the left side of block 2 (Fig. 13 and 14).

3.08 If additional connector cables are required, use the same procedure to cut down A75A(2) connector cable on connecting blocks 3 and 4 (Fig. 13 and 15) and A75A(3) connector cable on connecting blocks 5 and 6 (Fig. 13 and 16).

3.09 Follow the methods described in 3.07 and 3.08 to install the A75A connector cable(s) serving console No. 2 (if provided).

3.10 Mount the power unit(s) above the modular panels (Fig. 11). One of the power units (79B-type or 103B) should be mounted on a J59203A, List 3 mounting bracket to provide storage space for the CD and SD binder. Divide 722A panels (if provided) evenly between the power units. ♦Use a maximum of two panels per power unit.♦ **Do not connect power unit(s) to ac power source at this time.**

3.11 If battery reserve (104B power unit) is not provided, use the cable assemblies provided (Fig. 17) and interconnect 720A panels to the left. Attach the cable assembly from the last 720A panel on the left to plug P2 of the 103B power unit (Fig. 9). Interconnect 722A panels to the left if DSS and BLF are provided (Fig. 18), and attach the cable assembly from the last 722A panel on the left in connector J2 of the 103B power unit.

3.12 If battery reserve (104B power unit) is provided, interconnect the 720A panels as described in 3.11 except attach cable assembly of the last 720A panel on the left to plug J2 on the 104B power unit (Fig. 10). Connect the 2-foot B25A connector cable (furnished) from connector J1 of the 104B power unit to plug P2 on the 103B power unit. Interconnect 722A panels to the left and to the 103B power unit.

Note: When required B25A connector cables can be used to extend space between panels and power units (15 feet maximum length).

3.13 Install station sets at desired locations.

3.14 Install 66M1-25 connecting blocks on the blue backboard as required. Install and terminate wiring from stations to the connecting blocks.

3.15 ♦Install 841226038 network if 429B KTU is used with 400D KTU. If 429B KTU is used, do not use 400G KTU. The 841226038 network is replaced by a strap in later systems where the AE34 CP replaces the 429B KTU. Install wiring option on AE34 CP (Fig. 19) when used.♦

3.16 Install KTUs and CPs required. See Fig. 17 and 18 for examples and location.

(a) An HK5 CP must be installed in connectors J4A and J4B of the first 720A panel (associated with each console) only.

(b) To extend loop control, an AE32 CP must be installed in the second and all subsequent 720A panels equipped with 400D or ♦400G♦ KTUs. See Fig. 17 and 18.

(c) If trunk group busy (TGB) lamp is required, install an AE33 CP for each TGB lamp required. The AE33 CP can be installed in connectors J1A, J1B, J2A, or J2B of the 720A panel. The J2B connector of the last 720A panel is preferred, but any of the four connectors can be used. Each AE33 CP used reduces loop capacity by one.

3.17 Connect console mounting cords to the A75A connector cables.

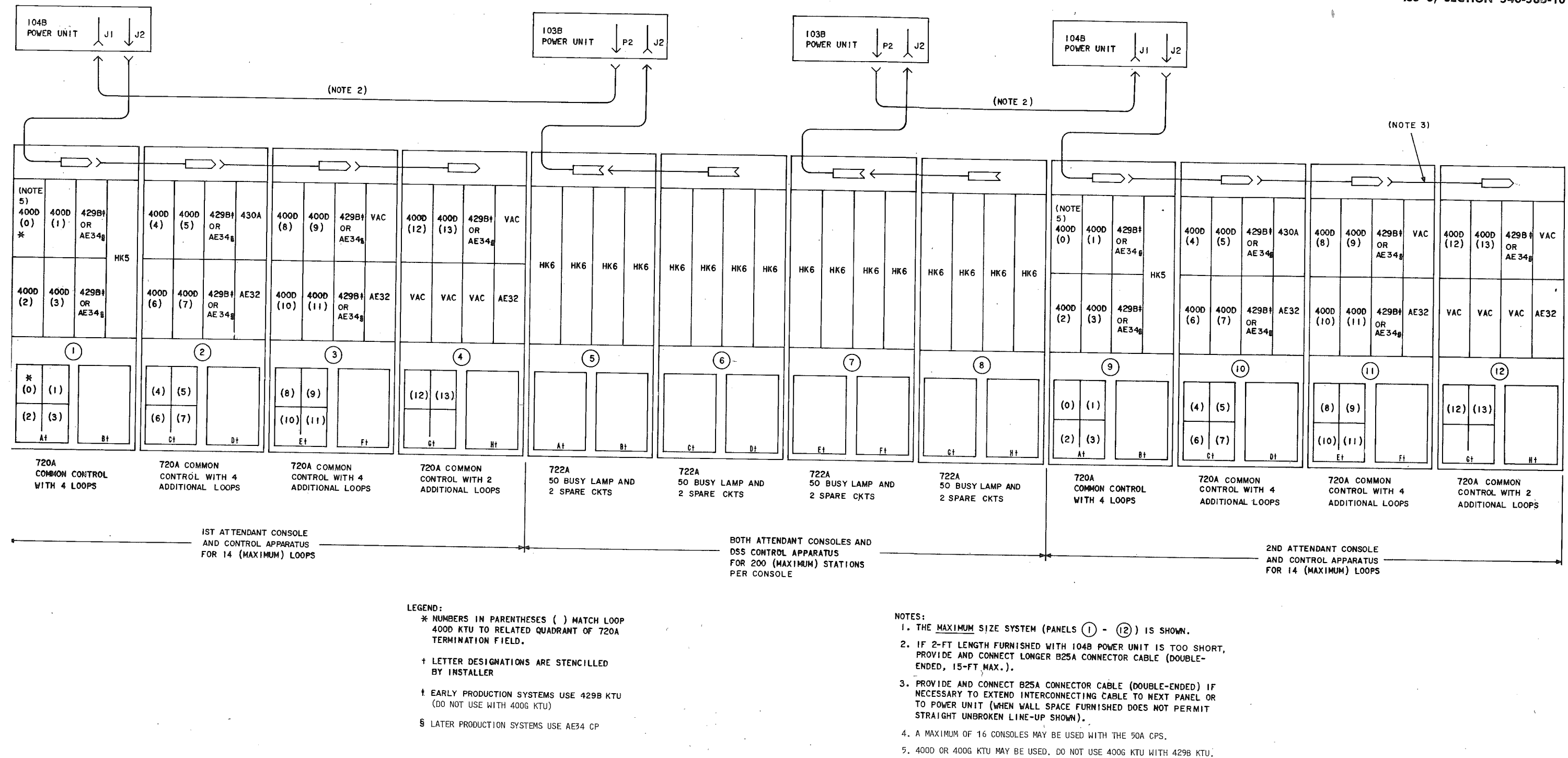


Fig. 10—Arrangement of Wall-Mounted Apparatus for Two Telephone Consoles (14 Loops Each) and 200-Station DSS (Maximum)

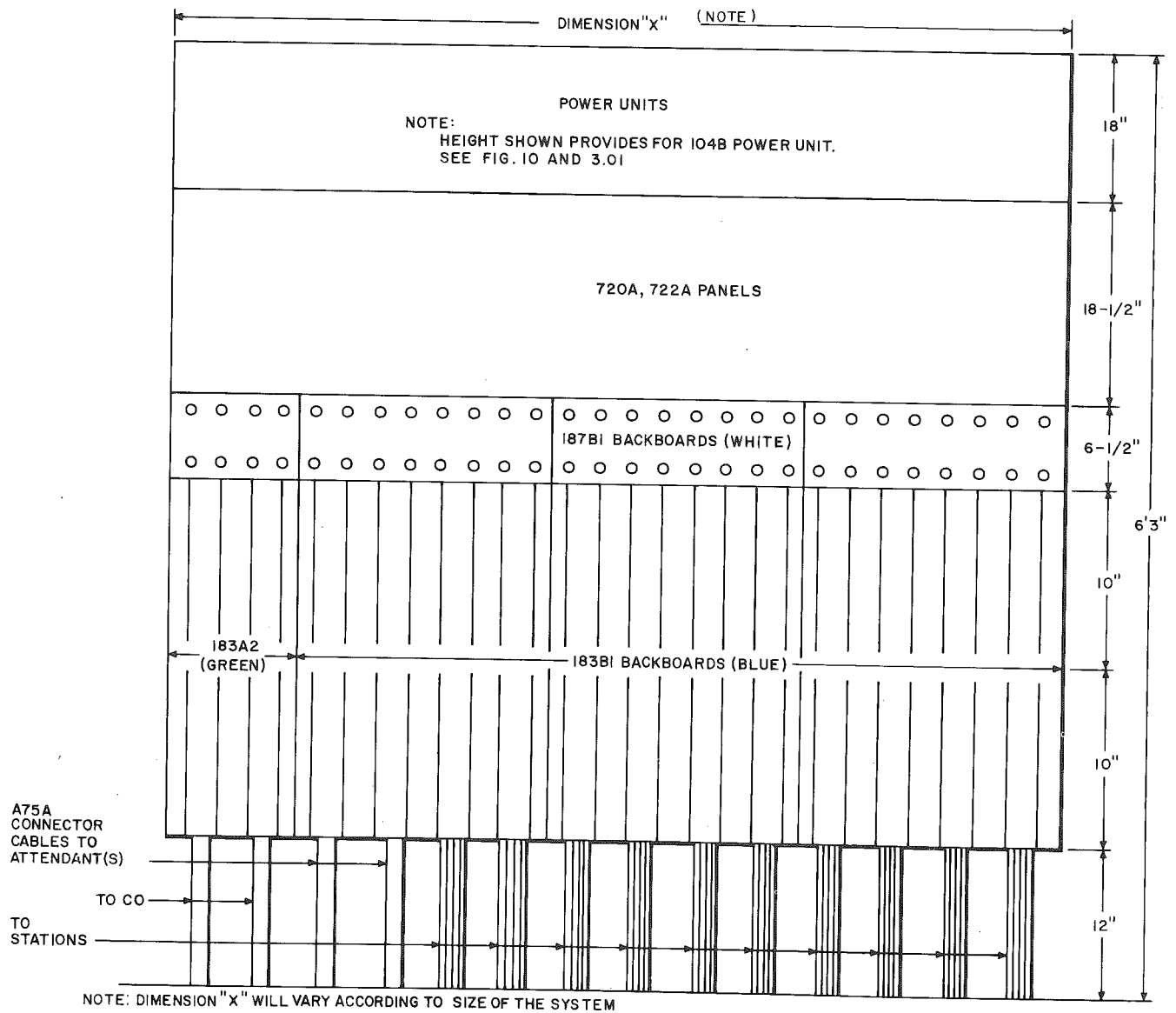


Fig. 11—Typical 50A CPS Centralized Terminal Field-Modular Panel Arrangement

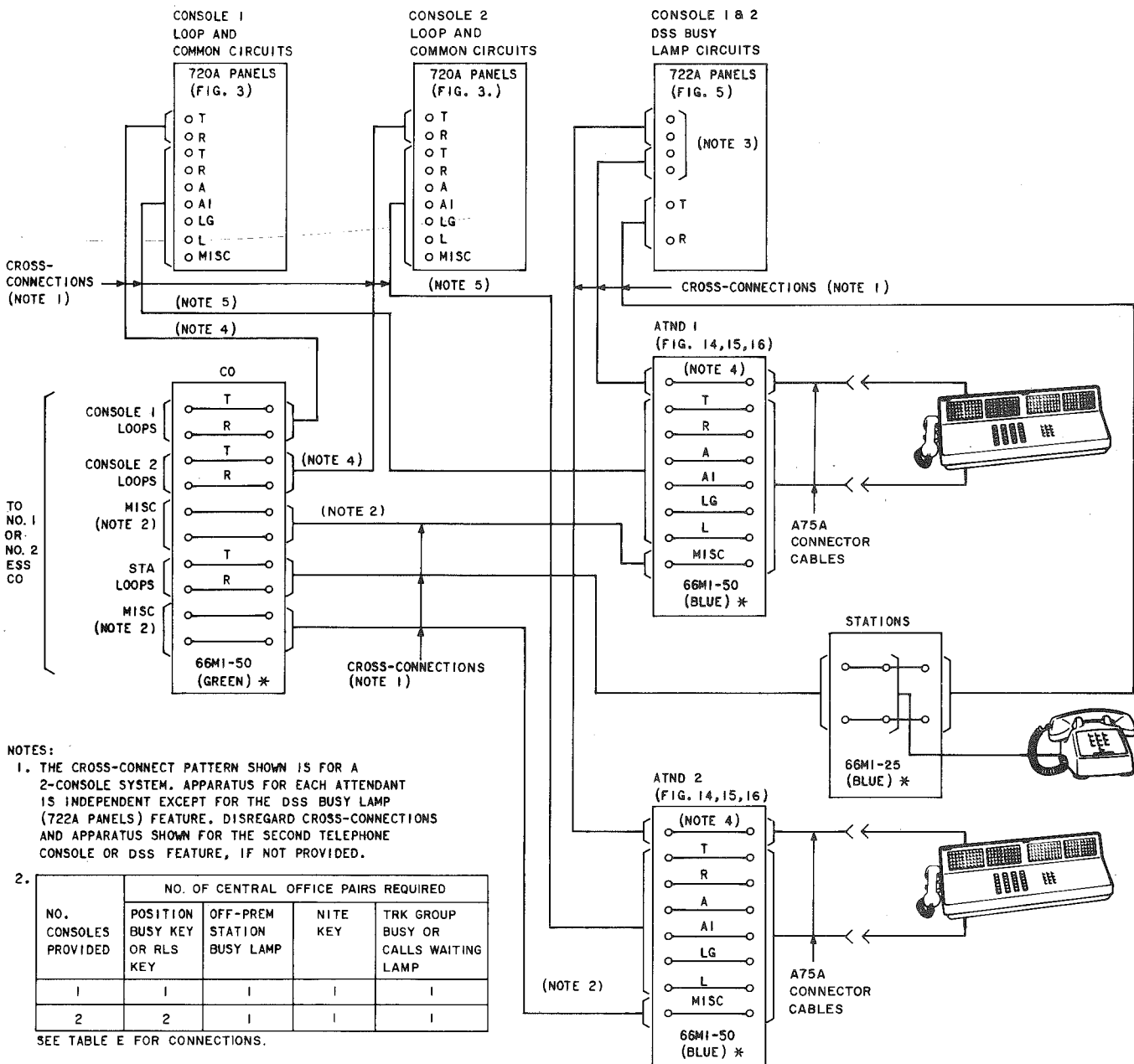


Fig. 12—Typical Panel and Cabling Block Diagram

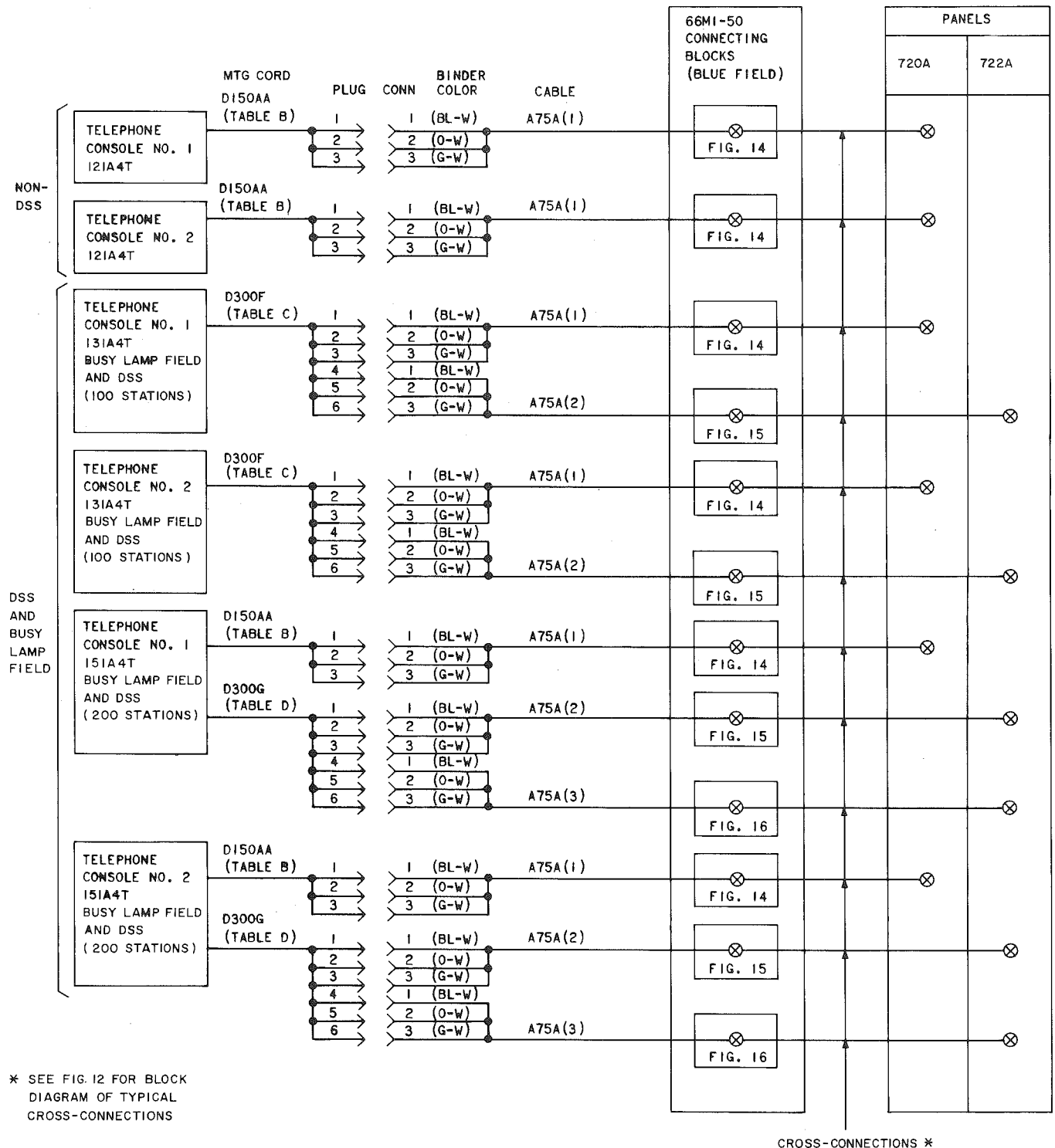
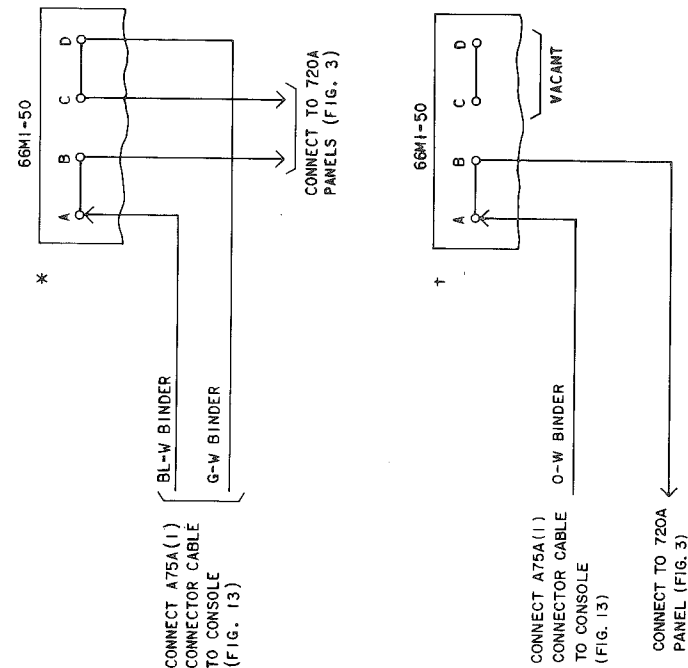


Fig. 13—Block Diagram of Telephone Console Cabling

BLOCK 1 (BLUE FIELD)				BLOCK 1 (BLUE FIELD)			
CONSOLE KEY (SEE TABLES B AND C)	A75A (1) CONN CABLE		P/O 66M1-50 CONN BLK	CROSS CONN	720A PANEL S (SEE FIG. 3)	720A PANEL S (SEE FIG. 3)	CONSOLE KEY (SEE TABLES B AND C)
	LEAD DESIG	BL-W BINDER					
0	T	(W-BL)	1	T			9
	R	(BL-W)	2	R			
	A	(W-O)	3	A			
	AI	(O-W)	4	AI			
	LG	(W-G)	5	LG			
1	L	(G-W)	6	L			10
	T	(W-BR)	7	T			
	R	(BR-W)	8	R			
	A	(W-S)	9	A			
	AI	(S-W)	10	AI			
2	LG	(R-BL)	11	LG			11
	L	(BL-R)	12	L			
	T	(R-O)	13	T			
	R	(O-R)	14	R			
	A	(R-G)	15	A			
SPLT	AI	(G-R)	16	AI			12
	LG	(R-BR)	17	LG			
	L	(BR-R)	18	L			
	T	(R-S)	19	T			
	R	(S-R)	20	R			
CC	A	(BK-BL)	21	A			13
	AI	(BL-BK)	22	AI			
	LG	(BK-O)	23	LG			
	L	(O-BK)	24	L			
	-	(BK-G)	25	-			
RLS	CC	(G-BK)	26	CC			HOLD
	SPARE	(BK-BR)	27	SPARE			
	SPARE	(BR-BK)	28	SPARE			
	LG	(BK-S)	29	LG			
	L	(S-BK)	30	L			
DISC	SPARE	(Y-BL)	31	SP			AUD SIG
	SPARE	(BL-Y)	32	GD			
	SPARE	(Y-O)	33				
	SPARE	(O-Y)	34				
	LG	(Y-G)	35				
	L	(G-Y)	36				NITE
	SPARE	(Y-BR)	37				
	SPARE	(BR-Y)	38				
	RC	(Y-S)	39				
	BAT1	(S-Y)	40				
	BAT2	(V-BL)	41				
	-	(BL-V)	42				
	H	(V-O)	43				
	SPARE	(O-V)	44				
	SPARE	(V-G)	45				
	-	(G-V)	46				
	DA	(V-BR)	47				
	DB	(BR-V)	48				
	LG	(V-S)	49				
	L	(S-V)	50				

Fig. 14—121A4T, 131A4T, and 151A4T Telephone Console Connections to 66M1-50 Connecting Blocks and 720A Panels (Sheet 1 of 2)



* THE RLS1, RLS2, TMS, PBI AND PB2 LEADS DO NOT CONNECT TO THE 720A PANELS. CONNECT THE TMS LEAD TO THE TRAFFIC MEASUREMENT SYSTEM. FOR MULTIPLE CONSOLE INSTALLATIONS WHERE JUST THE POSITION BUSY KEY SIGNALS THE ESS, CROSS-CONNECT LEADS PBI AND PB2 OF EACH CONSOLE TO SEPARATE CO PAIRS ON THE GREEN FIELD. FOR MULTIPLE CONSOLE INSTALLATIONS WHERE THE POSITION BUSY KEY AND RLS KEY SIGNAL THE ESS, CROSS-CONNECT LEADS PBI AND RLS1 OF EACH CONSOLE TO SEPARATE CO PAIRS AND STRAP LEADS PB2 AND RLS 2 TOGETHER. FOR SINGLE CONSOLE INSTALLATIONS WHERE THE RLS KEY SIGNALS THE ESS, CROSS-CONNECT LEADS RLS1 AND RLS2 TO THE CO PAIR

S TYPICAL LOOP ASSIGNMENTS 0-3 SHOWN ON FIG. 3. ASSIGNMENTS FOR OTHER LOOPS 4-13 FOLLOW THE SAME ORDER

† TO PROVIDE THE CALLS WAITING FEATURE (NO. 1 ESS CO-CTX-7 AND NO. 2 ESS CO-EF-2) CROSS-CONNECT LEADS LG AND L OF THE RLS KEY LAMP FROM EACH CONSOLE TO A 720A PANEL EQUIPPED WITH AN AE33 CP WHICH IS CONNECTED TO THE CO.

BLOCK 2 (BLUE FIELD)				720A PANEL S (SEE FIG. 3)	
CONSOLE KEY (SEE TABLES B AND C)	A75A (1) CONN CABLE		P/O 66M1-50 CONN BLK	CROSS CONN	
	LEAD DESIG	O-W BINDER		LEAD	DESIG
3	T	(W-BL)	1	1	T
	R	(BL-W)	2	2	R
	A	(W-O)	3	3	A
	AI	(O-W)	4	4	AI
	LG	(W-G)	5	5	LG
4	L	(G-W)	6	6	L
	T	(W-BR)	7	7	T
	R	(BR-W)	8	8	R
	A	(W-S)	9	9	A
	AI	(S-W)	10	10	AI
5	LG	(R-BL)	11	11	LG
	L	(BL-R)	12	12	L
	T	(R-O)	13	13	T
	R	(O-R)	14	14	R
	A	(R-G)	15	15	A
6	AI	(G-R)	16	16	AI
	LG	(R-BR)	17	17	LG
	L	(BR-R)	18	18	L
	T	(R-S)	19	19	T
	R	(S-R)	20	20	R
7	A	(BK-BL)	21	21	A
	AI	(BL-BK)	22	22	AI
	LG	(BK-O)	23	23	LG
	L	(O-BK)	24	24	L
	T	(BK-G)	25	25	T
8	R	(G-BK)	26	26	R
	A	(BK-BR)	27	27	A
	AI	(BR-BK)	28	28	AI
	LG	(BK-S)	29	29	LG
	L	(S-BK)	30	30	L
NOT ASSGND	T	(Y-BL)	31	31	T
	R	(BL-Y)	32	32	R
	A	(Y-O)	33	33	A
	AI	(O-Y)	34	34	AI
	LG	(Y-G)	35	35	LG
NOT ASSGND	L	(G-Y)	36	36	L
	SPARE	(Y-BR)	37	37	
	SPARE	(BR-Y)	38	38	
	LG	(Y-S)	39	39	
	L	(S-Y)	40	40	
POS BSY	SPARE	(V-BL)	41	41	
	SPARE	(BL-V)	42	42	
	LG	(V-O)	43	43	
	L	(O-V)	44	44	
	SPARE	(V-G)	45	45	
†	TMS	(G-V)	46	46	TMS
	PB2	(V-BR)	47	47	PB2
	PBI	(BR-V)	48	48	PBI
	LG	(V-S)	49	49	
	L	(S-V)	50	50	

Fig. 14—121A4T, 131A4T, and 151A4T Telephone Console Connecting Blocks and 720A Panels (Sheet 2 of 2)

BLOCK 3 (BLUE FIELD)

CONSOLE (SEE TABLE C AND D)	A75A (2) CONN CABLE		P/O 66M1-50 CONN BLK	CROSS CONN	SECOND 722A PANEL		CONSOLE LAMPS (SEE TABLE C AND D)
	LEAD DESIG #	BL-W BINDER			RIGHT TS D	LEFT TS C	
POWER LEADS	-24	(W-BL)	1	L50			L50-74
	-24	(BL-W)	2	L51			
	-24	(W-O)	3	L52			
	-24	(O-W)	4	L53			
	-11	(W-G)	5	L54			
	-11	(G-W)	6	L55			
	-11	(W-BR)	7	L56			
	-11	(BR-W)	8	L57			
	GRD	(W-S)	9	L58			
	SPARE	(S-W)	10	L59			
SPARE	SPARE	(R-BL)	11	L60			L75-99
	SPARE	(BL-R)	12	L61			
	SPARE	(R-O)	13	L62			
	SPARE	(O-R)	14	L63			
	SPARE	(R-G)	15	L64			
	SPARE	(G-R)	16	L65			
	SPARE	(R-BR)	17	L66			
	SPARE	(BR-R)	18	L67			
	SPARE	(R-S)	19	L68			
	SPARE	(S-R)	20	L69			
LC 0-9	SPARE	(BK-BL)	21	L70			
	SPARE	(BL-BK)	22	L71			
	LC0X	(BK-O)	23	L72			
	LC0X	(O-BK)	24	L73			
	LC1X	(BK-G)	25	L74			
	LC1X	(G-BK)	26	L75			
	LC2X	(BK-BR)	27	L76			
	LC2X	(BR-BK)	28	L77			
	LC3X	(BK-S)	29	L78			
	LC3X	(S-BK)	30	L79			
SPARE	LC4X	(Y-BL)	31	L80			LAMP 50-99
	LC4X	(BL-Y)	32	L81			
	LC5X	(Y-O)	33	L82			
	LC5X	(O-Y)	34	L83			
	LC6X	(Y-G)	35	L84			
	LC6X	(G-Y)	36	L85			
	LC7X	(Y-BR)	37	L86			
	LC7X	(BR-Y)	38	L87			
	LC8X	(Y-S)	39	L88			
	LC8X	(S-Y)	40	L89			
SPARE	LC9X	(V-BL)	41	L90			LAMP 50-99
	LC9X	(BL-V)	42	L91			
	SPARE	(V-O)	43	L92			
	SPARE	(O-V)	44	L93			
	SPARE	(V-G)	45	L94			
	SPARE	(G-V)	46	L95			
	SPARE	(V-BR)	47	L96			
	SPARE	(BR-V)	48	L97			
	SPARE	(V-S)	49	L98			
	SPARE	(S-V)	50	L99			

BLOCK 3 (BLUE FIELD)

CONSOLE (SEE TABLE C AND D)	A75A (2) CONN CABLE		P/O 66M1-50 CONN BLK	CROSS CONN	FIRST 722A PANEL		SECOND 722A PANEL
	LEAD DESIG #	BL-W BINDER			LEAD DESIG	RIGHT TS D	
POWER LEADS	-24	(W-BL)	1	-24			-24V _S
	-24	(BL-W)	2	-24			
	-24	(W-O)	3	-24			
	-24	(O-W)	4	-24			
	-11	(W-G)	5	-11			
	-11	(G-W)	6	-11			
	-11	(W-BR)	7	-11			
	-11	(BR-W)	8	-11			
	GRD	(W-S)	9	GRD			
	SPARE	(S-W)	10	GRD			
SPARE	SPARE	(R-BL)	11				-11V _S
	SPARE	(BL-R)	12				
	SPARE	(R-O)	13				
	SPARE	(O-R)	14				
	SPARE	(R-G)	15				
	SPARE	(G-R)	16				
	SPARE	(R-BR)	17				
	SPARE	(BR-R)	18				
	SPARE	(R-S)	19				
	SPARE	(S-R)	20				
LC 0-9	SPARE	(BK-BL)	21				GRD _S
	SPARE	(BL-BK)	22				
	LC0X	(BK-O)	23				
	LC0X	(O-BK)	24				
	LC1X	(BK-G)	25				
	LC1X	(G-BK)	26				
	LC2X	(BK-BR)	27				
	LC2X	(BR-BK)	28				
	LC3X	(BK-S)	29				
	LC3X	(S-BK)	30				
LC 0-9	LC4X	(Y-BL)	31				LC 0-4
	LC4X	(BL-Y)	32				
	LC5X	(Y-O)	33				
	LC5X	(O-Y)	34				
	LC6X	(Y-G)	35				
	LC6X	(G-Y)	36				
	LC7X	(Y-BR)	37				
	LC7X	(BR-Y)	38				
	LC8X	(Y-S)	39				
	LC8X	(S-Y)	40				
SPARE	LC9X	(V-BL)	41				LC 5-9
	LC9X	(BL-V)	42				
	SPARE	(V-O)	43				
	SPARE	(O-V)	44				
	SPARE	(V-G)	45				
	SPARE	(G-V)	46				
	SPARE	(V-BR)	47				
	SPARE	(BR-V)	48				
	SPARE	(V-S)	49				
	SPARE	(S-V)	50				

Fig. 15—131A4T and 151A4T Telephone Console Connections to 66M1-50 Connecting Blocks and 722A Panels—DSS and BLF, 0-99 (Sheet 1 of 2)

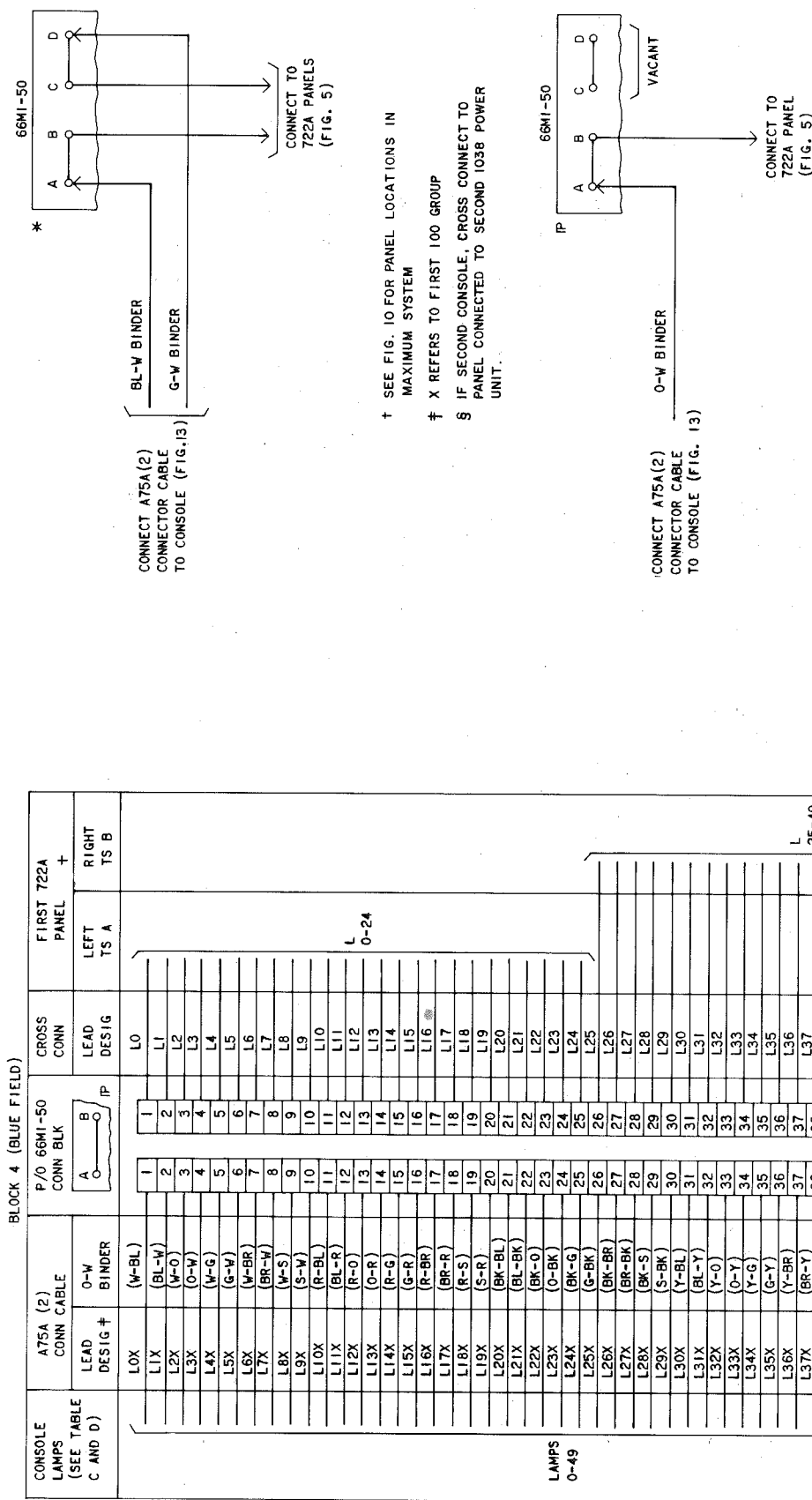


Fig. 15—131A4T and 151A4T Telephone Console Connections to 66M1-50 Connecting Blocks and 722A Panels—DSS and BLF, 0-99 (Sheet 2 of 2)

BLOCK 5 (BLUE FIELD)				BLOCK 5 (BLUE FIELD)			
CONSOLE (SEE TABLE D)	A75A (3) CONN CABLE		P/O 66M1-50 CONN BLK	CROSS CONN		FOURTH 722A PANEL	FOURTH 722A PANEL
	LEAD DESIG #	BL-W RINGER		LEAD DESIG	RIGHT TS H		
SPARE	SPARE	(W-BL)	1	L50			
	SPARE	(BL-W)	2	L51			
	SPARE	(W-O)	3	L52			
	SPARE	(O-W)	4	L53			
	SPARE	(W-G)	5	L54			
	SPARE	(G-W)	6	L55			
	SPARE	(W-BR)	7	L56			
	SPARE	(BR-W)	8	L57			
	SPARE	(W-S)	9	L58			
	SPARE	(R-BL)	10	L59			
SPARE	SPARE	(BL-R)	11	L60			
	SPARE	(R-O)	12	L61			
	SPARE	(O-R)	13	L62			
	SPARE	(R-G)	14	L63			
	SPARE	(G-R)	15	L64			
	SPARE	(R-BR)	16	L65			
	SPARE	(BR-R)	17	L66			
	SPARE	(R-S)	18	L67			
	SPARE	(S-R)	19	L68			
	SPARE	(BK-BL)	20	L69			
LC 0-9	LC0Y	(BK-O)	21	L70			
	LC1Y	(O-BK)	22	L71			
	LC1Y	(BK-G)	23	L72			
	LC2Y	(G-BK)	24	L73			
	LC2Y	(BK-BR)	25	L74			
	LC3Y	(BR-BK)	26	L75			
	LC3Y	(BK-S)	27	L76			
	LC3Y	(S-BK)	28	L77			
	LC4Y	(Y-BL)	29	L78			
	LC4Y	(BL-Y)	30	L79			
LC 0-9	LC5Y	(Y-O)	31	L80			
	LC5Y	(O-Y)	32	L81			
	LC6Y	(Y-G)	33	L82			
	LC6Y	(G-Y)	34	L83			
	LC7Y	(Y-BR)	35	L84			
	LC7Y	(BR-Y)	36	L85			
	LC8Y	(Y-S)	37	L86			
	LC8Y	(S-Y)	38	L87			
	LC9Y	(Y-BL)	39	L88			
	LC9Y	(BL-Y)	40	L89			
SPARE	SPARE	(V-O)	41	L90			
	SPARE	(O-V)	42	L91			
	SPARE	(V-G)	43	L92			
	SPARE	(G-V)	44	L93			
	SPARE	(V-BR)	45	L94			
	SPARE	(BR-V)	46	L95			
	SPARE	(V-S)	47	L96			
	SPARE	(S-V)	48	L97			
	SPARE		49	L98			
	SPARE		50	L99			

Fig. 16—151A4T Telephone Console Connections to 66M1-50 Connecting Blocks and 722A Panels—DSS and BLF, 100-199 (Sheet 1 of 2)

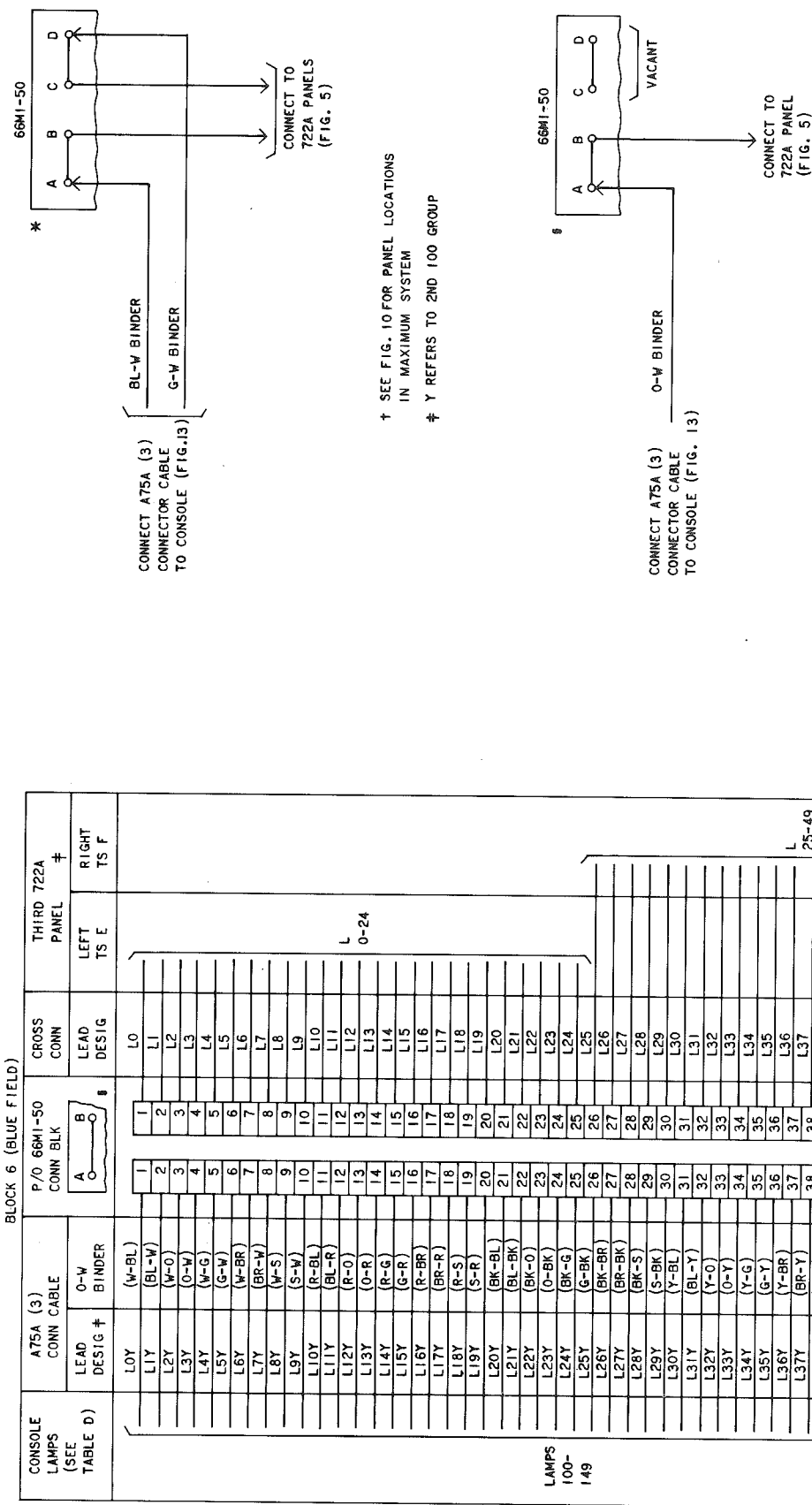
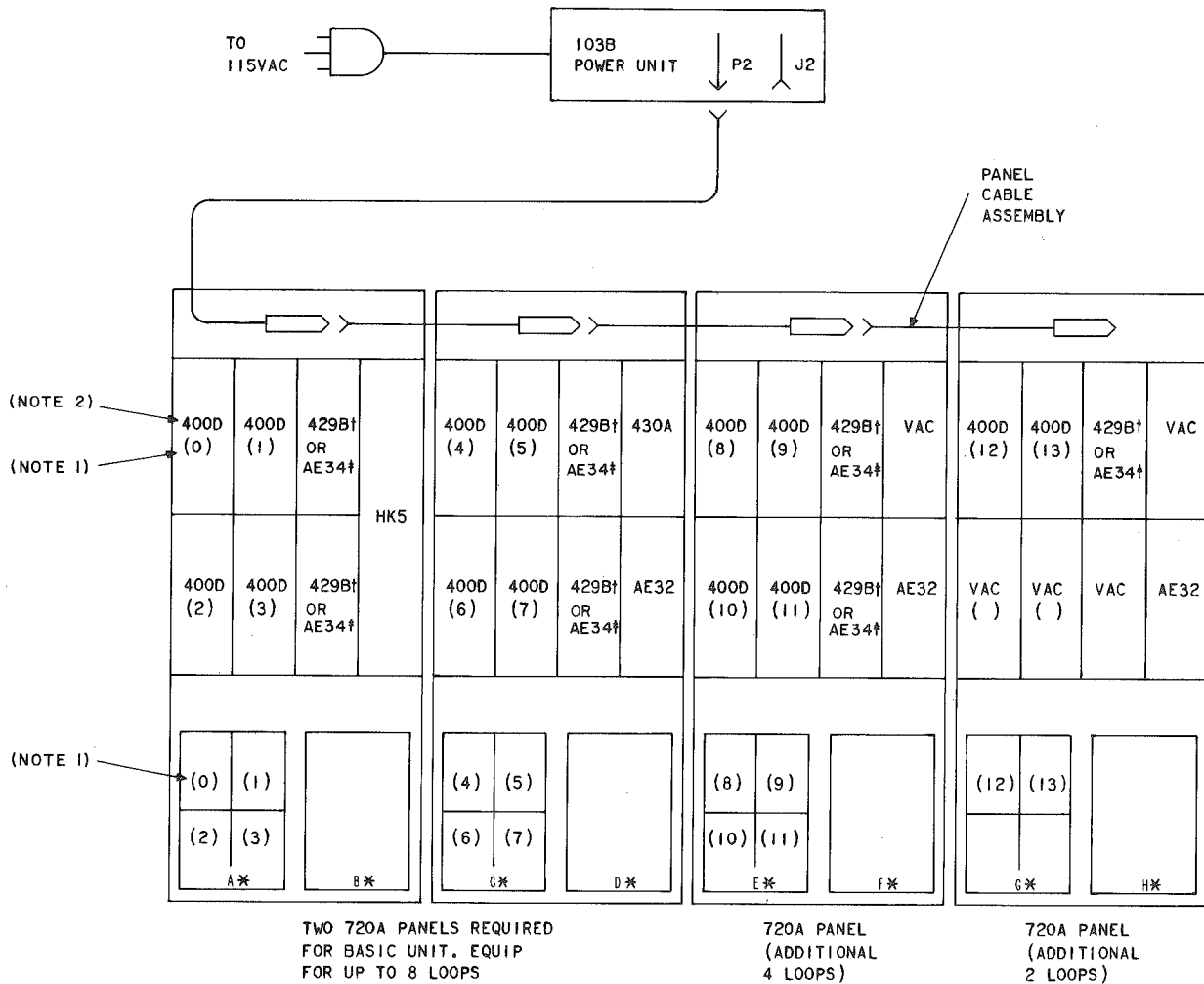


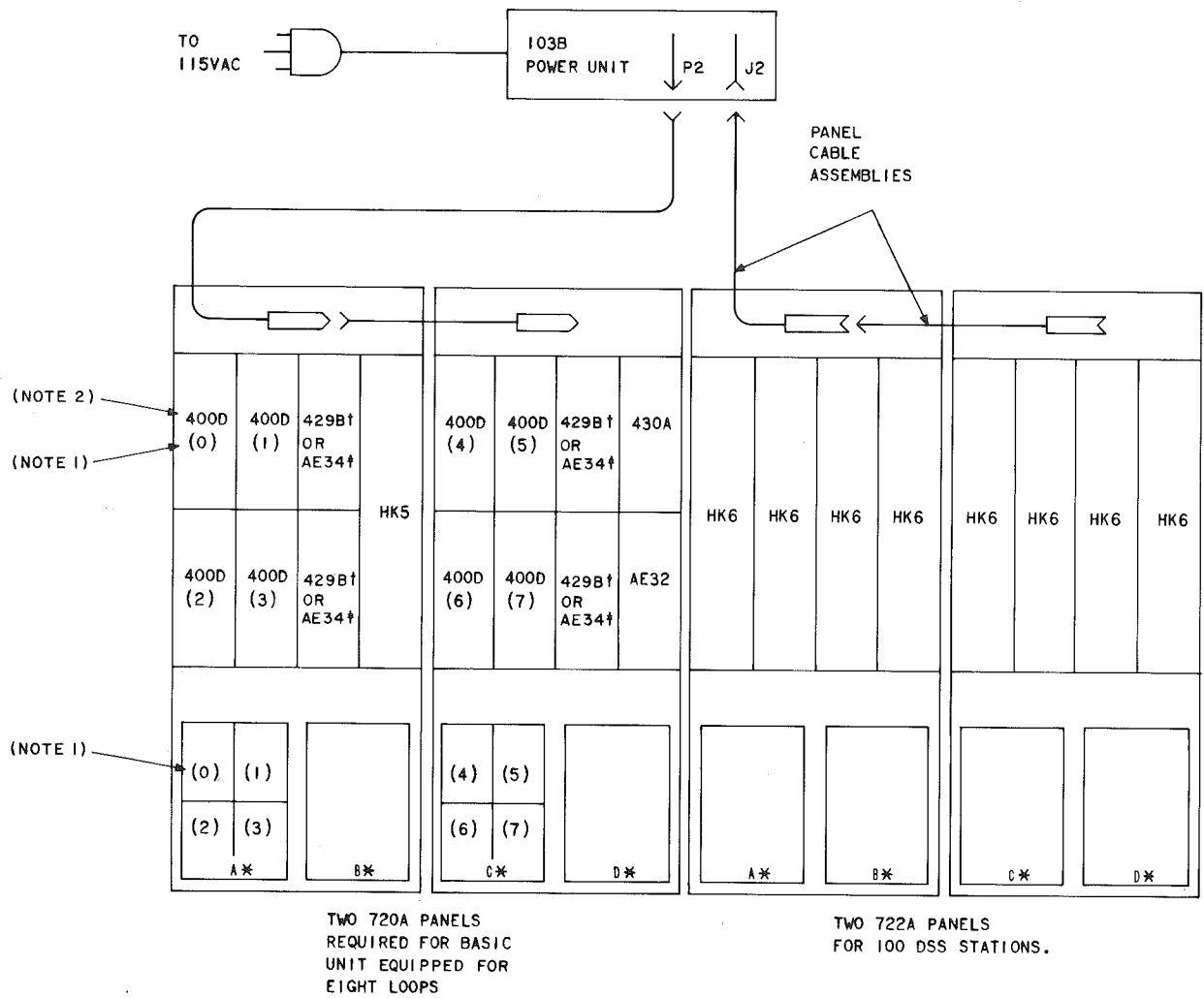
Fig. 16—151A4T Telephone Console Connections to 66M1-50 Connecting Blocks and 722A Panels—DSS and BLF, 100-199 (Sheet 2 of 2)



NOTES:

- NUMBERS IN PARENTHESES () MATCH LOOP 400D KTU TO RELATED QUADRANT OF 720A TERMINATION FIELD. AE33 CIRCUIT PACK (FOR TRUNK GROUP BUSY LAMP CIRCUIT) CAN BE SUBSTITUTED (OR USED) IN ANY POSITION () SHOWN ON THE LEFT HALF OF THE PANEL.
 - 400D OR 400G KTU MAY BE USED.
DO NOT USE 400G KTU WITH 429B KTU.
- * LETTER DESIGNATIONS SHOWN (A-H, TYPICAL) ARE STENCILLED BY INSTALLER.
- † EARLY PRODUCTION SYSTEMS USE 429B KTU
(DO NOT USE WITH 400G KTU)
- ‡ LATER PRODUCTION SYSTEMS USE AE34 CP

Fig. 17—Typical Wall-Mounted Apparatus for Single Telephone Console With 14 Loops



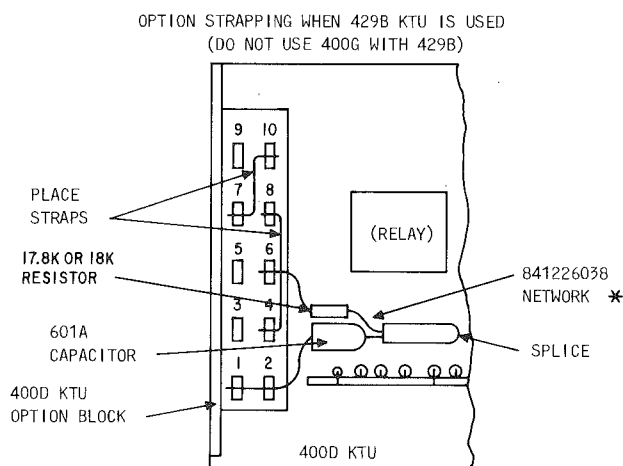
NOTES:

1. NUMBERS IN PARENTHESES () MATCH LOOP 400D KTU TO RELATED QUADRANT OF 720A TERMINATION FIELD.
2. 400D OR 400G KTU MAY BE USED.
DO NOT USE 400G KTU WITH 429B KTU.

- * LETTER DESIGNATIONS (A-D, TYPICAL) ARE STENCILLED BY INSTALLER.
- † EARLY PRODUCTION SYSTEMS USE 429B KTU
(DO NOT USE WITH 400G KTU)
- ‡ LATER PRODUCTION SYSTEMS USE AE34 CP

Fig. 18—Typical Wall-Mounted Apparatus for Single Telephone Console With 8 Loops and 100-Station DSS and BLF

OPTION STRAPPING WHEN AE34 CP IS USED				
400G KTU	400D KTU		AE34 CP WITH 400D	AE34 CP WITH 400G
PROVIDE OPTION	PLACE STRAP	REMOVE STRAP	PLACE STRAP	
	BETWEEN TERMINALS			
Z, Y, V, N	4 TO 8	5 TO 8	1 TO 2	2 TO 3
	7 TO 10 1 TO 2 TO 6	1 TO 2	9 TO 10	7 TO 10



* BEND THE LEADS OF THE NETWORK TO THE SHAPE SHOWN ABOVE THEN TERMINATE THE NETWORK ON THE OPTION BLOCK AS SHOWN.

Fig. 19—Option Strapping on 400D and 400G KTUs With AE34 CP and Network Installation on 400D KTU With 429B KTU

4. CONNECTIONS

4.01 Plan cross-connections for individual loops to the console(s), using Table B or C and Fig. 8. The key location assigned on the console(s) for listed directory numbers (LDNs), wide area telephone service (WATS), dial "0" loops, etc, shall be determined locally.

4.02 Console cables are terminated on columns A and D (outer) of the 66M1-50 connecting blocks. Cross-connections are made on B and C (inner) terminal columns of the 66M1-50 connecting blocks (Fig. 14, 15, and 16).

4.03 Refer to Fig. 3 to terminate cross-connections for CO loops (assigned in 4.01) on 720A panels. Provide connections on the left side of the right strip from the **first** 720A panel (per

console) only, except Y strapping, which is applied to the **last** 720A panel (per console) containing an AE32 CP, or the first 720A panel if an AE32 CP is not provided.

4.04 Refer to Fig. 14 for connections to the 720A panels (Fig. 3, typical). Cross-connect as shown in Fig. 14 for the type of console(s) used and loop assignment determined. Although loops are numbered 0-13 (Fig. 14) in panels and console keys are numbered 0-13 (Fig. 8, Tables B and C), they are cross-connected on a per job basis.

4.05 Refer to Fig. 15 and 16 for connections to 722A panels (Fig. 5, typical). Provide connections shown for the console (equipped with BLF) and the station lamp commons to be used (Table D).

Caution: *Do not cross-connect to unused equipped DSS or BLF lamp terminals L, LC (Fig. 15 and 16). This may cause a false busy station lamp indication at the console(s). Remove cross-connections from lamp terminals when a station line is disconnected for the same reason.*

4.06 Cross-connect CO station loops (green field) to 66M1-25 connecting blocks (blue field) used to terminate stations (Fig. 12).

4.07 Cross-connect the T (tip) and R (ring) terminal for each station from the 66M1-25 connecting block shown in Fig. 12 to a connecting block of the 722A panel (Fig. 5, typical). This bridges each station line to a DSS lamp circuit.

4.08 If a busy lamp indication is required from an off-premise station, connect loop (or lead) assigned from the ESS CO to a spare circuit of a 722A panel through a locally furnished KS-13490, List 1 resistor. (See Fig. 5.) Lines having off-premise extensions with greater than 50-ohm loop

resistance between extension and termination field are also handled in this manner. (See SD-1E251-01.)

4.09 The number of miscellaneous cross-connections required between the CO termination (green) field and the telephone console(s) termination (blue) field (Fig. 14, 15, and 16) depends on the number of consoles and features provided. Provide cross-connections required using Table E.

4.10 Each console equipped for DSS contains a JM1 CP. Remove the console faceplate, and provide strapping for the digits in the codes of the stations to be directly selected as shown in Fig. 20.

4.11 If the # button of the TOUCH-TONE dial is to be used for split key functions (121A4T console, non-DSS), remove the console faceplate and strap terminal 12 to 13 on the JN1 CP (Fig. 21).

4.12 ♦Refer to Section 518-010-105 for grounding and special protection requirements.♦

4.13 Connect power cord(s) to power unit(s) and plug into 117V ac commercial power grounding outlet.

TABLE B

D150AA MOUNTING CORD,
121A4T AND 151A4T TELEPHONE CONSOLES

LEAD COLOR	PLUG PIN NO.	BLUE BINDER		ORANGE BINDER		GREEN BINDER	
		LEAD DESIG	KEY	LEAD DESIG	KEY	LEAD DESIG	KEY
W-BL	26	T	0	T	3	T	9
BL-W	1	R		R		R	
W-O	27	A		A		A	
O-W	2	A1		A1		A1	
W-G	28	LG		LG		LG	
G-W	3	L		L		L	
W-BR	29	T	1	T	4	T	10
BR-W	4	R		R		R	
W-S	30	A		A		A	
S-W	5	A1		A1		A1	
R-BL	31	LG		LG		LG	
BL-R	6	L		L		L	
R-O	32	T	2	T	5	T	11
O-R	7	R		R		R	
R-G	33	A		A		A	
G-R	8	A1		A1		A1	
R-BR	34	LG		LG		LG	
BR-R	9	L		L		L	
R-S	35	—	SPLT	T	6	T	12
S-R	10	—		R		R	
BK-BL	36	—		A		A	
BL-BK	11	—		A1		A1	
BK-O	37	LG		LG		LG	
O-BK	12	L		L		L	
BK-G	38	—	CC	T	7	T	13
G-BK	13	CC		R		R	
BK-BR	39	SPARE		A		A	
BR-BK	14	SPARE		A1		A1	
BK-S	40	LG		LG		LG	
S-BK	15	L		L		L	
Y-BL	41	RLS 1	RLS	T	8	—	HOLD
BL-Y	16	RLS 2		R		SP	
Y-O	42	SPARE		A		GRD	
O-Y	17	SPARE		A1		—	
Y-G	43	LG		LG		LG	
G-Y	18	L		L		L	
Y-BR	44	SPARE	DISC	SPARE	* POS BSY	SPARE	AUD SIG
BR-Y	19	SPARE		SPARE		—	
Y-S	45	RC		LG		—	
S-Y	20	BAT 1		L		—	
V-BL	46	BAT 2		SPARE		LG	
BL-V	21	—		SPARE		L	
V-O	47	—	DISC	LG	POS BSY	SPARE	NITE
O-V	22	H		L		—	
V-G	48	SPARE		SPARE		NB	
G-V	23	—		TMS		NA	
V-BR	49	DA		PB2		LG	
BR-V	24	DB		PB1		L	
V-S	50	LG		LG		—	
S-V	25	L		L		AR	

* Spare keys not assigned.

TABLE C

D300F MOUNTING CORD, 131A4T TELEPHONE CONSOLE

LEAD COLOR	PLUG PIN NO.	BLUE BINDER		ORANGE BINDER		GREEN BINDER		BROWN BINDER	SLATE BINDER	WHITE BINDER
		LEAD DESIG	KEY	LEAD DESIG	KEY	LEAD DESIG	KEY	DSS-BL LEADS†	DSS-BL LEADS†	DSS-BL LEADS†
W-BL	26	T	0	T	3	T	9	-24V	L 0X	L 50X
BL-W	1	R		R		R		-24V	L 1X	L 51X
W-O	27	A		A		A		-24V	L 2X	L 52X
O-W	2	A1		A1		A1		-24V	L 3X	L 53X
W-G	28	LG		LG		LG		-11V	L 4X	L 54X
G-W	3	L	1	L	4	L	10	-11V	L 5X	L 55X
W-BR	29	T		T		T		-11V	L 6X	L 56X
BR-W	4	R		R		R		-11V	L 7X	L 57X
W-S	30	A		A		A		GRD	L 8X	L 58X
S-W	5	A1		A1		A1		†	L 9X	L 59X
R-BL	31	LG	2	LG	5	LG	11	†	L 10X	L 60X
BL-R	6	L		L		L		†	L 11X	L 61X
R-O	32	T		T		T		†	L 12X	L 62X
O-R	7	R		R		R		†	L 13X	L 63X
R-G	33	A		A		A		†	L 14X	L 64X
G-R	8	A1	SPLT	A1	6	A1	12	†	L 15X	L 65X
R-BR	34	LG		LG		LG		†	L 16X	L 66X
BR-R	9	L		L		L		†	L 17X	L 67X
R-S	35	—		T	7	T	13	†	L 18X	L 68X
S-R	10	—		R		R		†	L 19X	L 69X
BK-BL	36	—	CC	A		A		†	L 20X	L 70X
BL-BK	11	—		A1		A1		†	L 21X	L 71X
BK-O	37	LG		LG		LG		LC 0X	L 22X	L 72X
O-BK	12	L		L		L		LC 0X	L 23X	L 73X
BK-G	38	—	CC	T	8	T	HOLD	LC 1X	L 24X	L 74X
G-BK	13	CC		R		R		LC 1X	L 25X	L 75X
BK-BR	39	SPARE		A		A		LC 2X	L 26X	L 76X
BR-BK	14	SPARE		A1		A1		LC 2X	L 27X	L 77X
BK-S	40	LG		LG		LG		LC 3X	L 28X	L 78X
S-BK	15	L	RLS	L	*	L	AUD SIG	LC 3X	L 29X	L 79X
Y-BL	41	RLS 1		T		—		LC 4X	L 30X	L 80X
BL-Y	16	RLS 2		R		SP		LC 4X	L 31X	L 81X
Y-O	42	SPARE		A		GRD		LC 5X	L 32X	L 82X
O-Y	17	SPARE		A1		—		LC 5X	L 33X	L 83X
Y-G	43	LG	DISC	LG	BSY	LG	NITE	LC 6X	L 34X	L 84X
G-Y	18	L		L		L		LC 6X	L 35X	L 85X
Y-BR	44	SPARE		SPARE		SPARE		LC 7X	L 36X	L 86X
BR-Y	19	SPARE		SPARE		—		LC 7X	L 37X	L 87X
Y-S	45	RC		LG		—		LC 8X	L 38X	L 88X
S-Y	20	BAT 1	DISC	L		—	NITE	LC 8X	L 39X	L 89X
V-BL	46	BAT 2		SPARE	*	LG		LC 9X	L 40X	L 90X
BL-V	21	—		SPARE		L		LC 9X	L 41X	L 91X
V-O	47	—		LG		SPARE		†	L 42X	L 92X
O-V	22	H		L		—		†	L 43X	L 93X
V-G	48	SPARE	DISC	SPARE	POS	NB	NITE	†	L 44X	L 94X
G-V	23	—		TMS		NA		†	L 45X	L 95X
V-BR	49	DA		PB2		LG		†	L 46X	L 96X
BR-V	24	DB		PB1		L		†	L 47X	L 97X
V-S	50	LG		LG		—		†	L 48X	L 98X
S-V	25	L		L		AR		†	L 49X	L 99X

* Spare keys not assigned.

† Leads spade-tipped, insulated, and stored.

‡ X Refers to first 100.

TABLE D

D300G MOUNTING CORD*, 151A4T TELEPHONE CONSOLE

LEAD COLOR	PLUG PIN NO.	BLUE BINDER	ORANGE BINDER	GREEN BINDER	BROWN BINDER	SLATE BINDER	WHITE BINDER
		DSS-BL LEADS†	DSS-BL LEADS‡	DSS-BL LEADS‡	DSS-BL LEADS‡	DSS-BL LEADS‡	DSS-BL LEADS‡
W-BL	26	-24V	L 0X	L 50X	†	L 0Y	L 50Y
BL-W	1	-24V	L 1X	L 51X	†	L 1Y	L 51Y
W-O	27	-24V	L 2X	L 52X	†	L 2Y	L 52Y
O-W	2	-24V	L 3X	L 53X	†	L 3Y	L 53Y
W-G	28	-11V	L 4X	L 54X	†	L 4Y	L 54Y
G-W	3	-11V	L 5X	L 55X	†	L 5Y	L 55Y
W-BR	29	-11V	L 6X	L 56X	†	L 6Y	L 56Y
BR-W	4	-11V	L 7X	L 57X	†	L 7Y	L 57Y
W-S	30	GRD	L 8X	L 58X	†	L 8Y	L 58Y
S-W	5	†	L 9X	L 59X	†	L 9Y	L 59Y
R-BL	31	†	L 10X	L 60X	†	L 10Y	L 60Y
BL-R	6	†	L 11X	L 61X	†	L 11Y	L 61Y
R-O	32	†	L 12X	L 62X	†	L 12Y	L 62Y
O-R	7	†	L 13X	L 63X	†	L 13Y	L 63Y
R-G	33	†	L 14X	L 64X	†	L 14Y	L 64Y
G-R	8	†	L 15X	L 65X	†	L 15Y	L 65Y
R-BR	34	†	L 16X	L 66X	†	L 16Y	L 66Y
BR-R	9	†	L 17X	L 67X	†	L 17Y	L 67Y
R-S	35	†	L 18X	L 68X	†	L 18Y	L 68Y
S-R	10	†	L 19X	L 69X	†	L 19Y	L 69Y
BK-BL	36	†	L 20X	L 70X	†	L 20Y	L 70Y
BL-BK	11	†	L 21X	L 71X	†	L 21Y	L 71Y
BK-O	37	LC 0X	L 22X	L 72X	LC 0Y	L 22Y	L 72Y
O-BK	12	LC 0X	L 23X	L 73X	LC 0Y	L 23Y	L 73Y
BK-G	38	LC 1X	L 24X	L 74X	LC 1Y	L 24Y	L 74Y
G-BK	13	LC 1X	L 25X	L 75X	LC 1Y	L 25Y	L 75Y
BK-BR	39	LC 2X	L 26X	L 76X	LC 2Y	L 26Y	L 76Y
BR-BK	14	LC 2X	L 27X	L 77X	LC 2Y	L 27Y	L 77Y
BK-S	40	LC 3X	L 28X	L 78X	LC 3Y	L 28Y	L 78Y
S-BK	15	LC 3X	L 29X	L 79X	LC 3Y	L 29Y	L 79Y
Y-BL	41	LC 4X	L 30X	L 80X	LC 4Y	L 30Y	L 80Y
BL-Y	16	LC 4X	L 31X	L 81X	LC 4Y	L 31Y	L 81Y
Y-O	42	LC 5X	L 32X	L 82X	LC 5Y	L 32Y	L 82Y
O-Y	17	LC 5X	L 33X	L 83X	LC 5Y	L 33Y	L 83Y
Y-G	43	LC 6X	L 34X	L 84X	LC 6Y	L 34Y	L 84Y
G-Y	18	LC 6X	L 35X	L 85X	LC 6Y	L 35Y	L 85Y
Y-BR	44	LC 7X	L 36X	L 86X	LC 7Y	L 36Y	L 86Y
BR-Y	19	LC 7X	L 37X	L 87X	LC 7Y	L 37Y	L 87Y
Y-S	45	LC 8X	L 38X	L 88X	LC 8Y	L 38Y	L 88Y
S-Y	20	LC 8X	L 39X	L 89X	LC 8Y	L 39Y	L 89Y
V-BL	46	LC 9X	L 40X	L 90X	LC 9Y	L 40Y	L 90Y
BL-V	21	LC 9X	L 41X	L 91X	LC 9Y	L 41Y	L 91Y
V-O	47	†	L 42X	L 92X	†	L 42Y	L 92Y
O-V	22	†	L 43X	L 93X	†	L 43Y	L 93Y
V-G	48	†	L 44X	L 94X	†	L 44Y	L 94Y
G-V	23	†	L 45X	L 95X	†	L 45Y	L 95Y
V-BR	49	†	L 46X	L 96X	†	L 46Y	L 96Y
BR-V	24	†	L 47X	L 97X	†	L 47Y	L 97Y
V-S	50	†	L 48X	L 98X	†	L 48Y	L 98Y
S-V	25	†	L 49X	L 99X	†	L 49Y	L 99Y

* DSS supplement to 150AA mounting cord. See Table B for control key cabling.

† Leads spade-tipped, insulated, and stored.

‡ X refers to first 100.

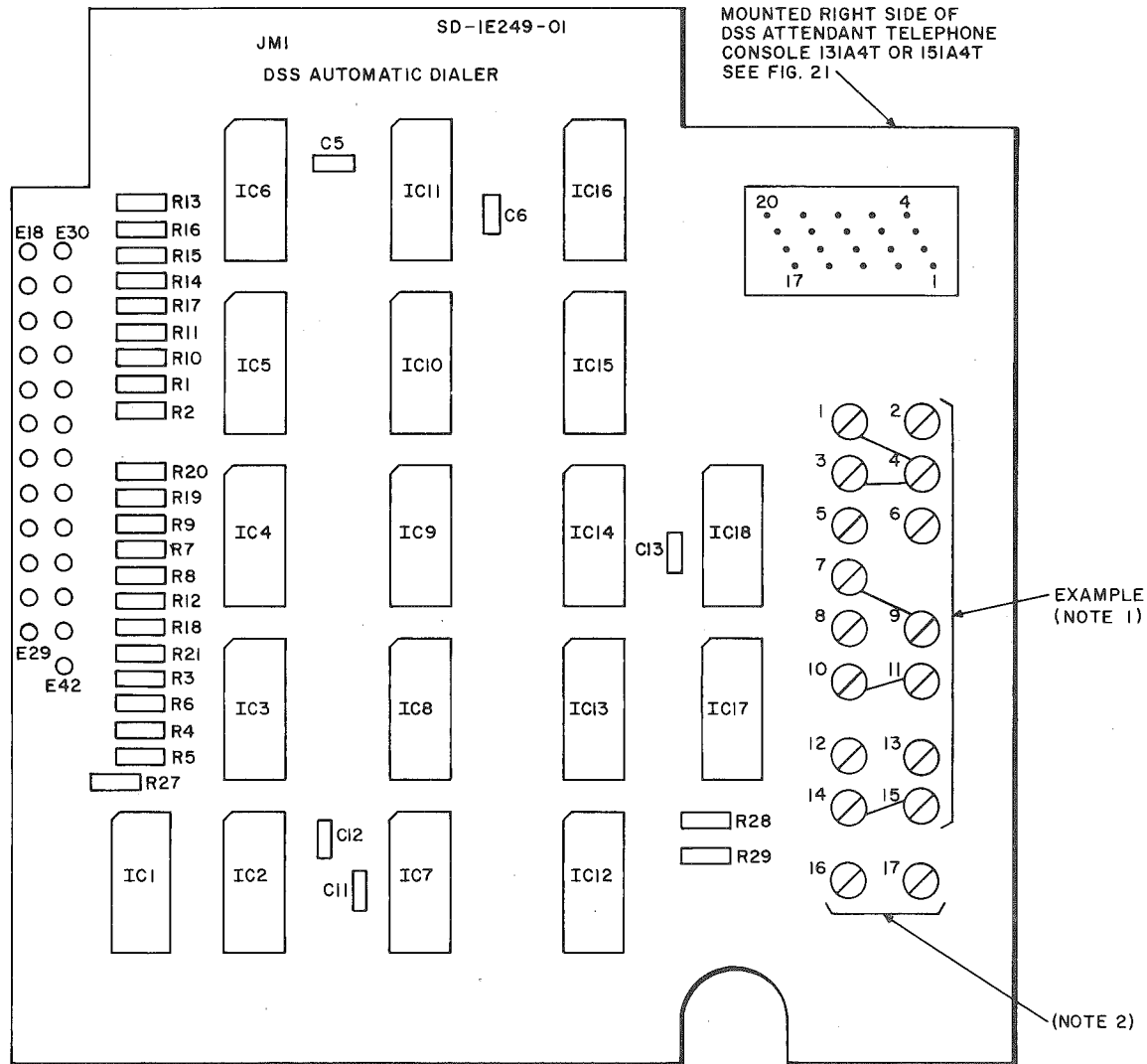
Y refers to second 100.

TABLE E
MISCELLANEOUS CONNECTIONS

FEATURE	CROSS-CONNECT					
	FROM			TO		
	CO CONN BLK (GREEN FIELD)	722A PANEL CONN BLK	720A PANEL CONN BLK	722A PANEL CONN BLK	CONSOLE 1 CONN BLK (BLUE FIELD)	CONSOLE 2 CONN BLK (BLUE FIELD)
Trunk Group Busy Lamp or Calls Waiting Lamp	T R			CO T R (Note 1)		
			LG (Note 1) L		LG (Note 2) L	LG (Note 2) L
NITE Key	N1 N2 (Note 7)			N1 N2 (Note 3)		
Position Busy	POS BUSY Key (two consoles)	PB1 PB2			PB1 PB2	
		PB1 PB2				PB1 PB2
	POS BUSY and RLS Keys (Note 6) (two consoles)	PB1 RLS1			PB1 RLS1 (Note 4)	
		PB1 RLS1				PB1 RLS1 (Note 4)
	RLS Key (Note 6) (one console)	RLS1 RLS2			RLS1 RLS2	
Off-Premise Station Busy Lamp (Note 5)	M					
	MM			TS RS		
				LS	Busy Lamp	Busy Lamp

Notes:

1. Connect to 720A panel (Fig. 3) from position (J1A, J1B, J2A, J2B) equipped with AE33 CP. See 3.16(c).
2. Any spare key lamp position can be used. Figure 8 shows preferred TGB lamp positions. The RLS key lamp is used for calls waiting (No. 1 ESS CO-CTX7 and No. 2 ESS CO-EF2).
3. Extend to first 720A panel for console 2 if provided.
4. Strap leads RLS2, PB2.
5. Install KS-13490, List 1 10K resistor between terminals TS and GRD on 722A panel. See Fig. 5.
6. Available with No. 1 ESS CO-CTX7 and No. 2 ESS CO-EF2.
7. Can also be used to bridge local bell across first loop.



		4 DIGIT EXTENSION		3 OR 4 DIGIT EXTENSION 100 OR 200 DSS		3 OR 4 DIGIT EXTENSION 200 DSS	
NUMBER OF DIGITS IN EXTENSION	CONNECT	THOUSANDS DIGIT	CONNECT	1ST GROUP HUNDREDS DIGIT	CONNECT	2ND GROUP HUNDREDS DIGIT	CONNECT
2	12-13, 14-15	0	8-9, 5-6	0	7-9, 3-6	0	10-9, 1-6
3	14-15 (NOTE 1)	1	—	1	—	1	—
4	—	2	8-9	2	7-9	2	10-9
NOTES:	1. STRAPS IN EXAMPLE SHOW METHOD OF PROVIDING FOR DSS- AUTOMATIC DIALING OF STATIONS 500-699 (TYPICAL).	3	8-11	3	7-11	3	10-11
		4	5-4	4	3-4	4	1-4
		5	8-9, 5-4	5	7-9, 3-4 (NOTE 1)	5	10-9, 1-4
		6	8-11, 5-4	6	7-11, 3-4	6	10-11, 1-4 (NOTE 1)
		7	5-2	7	3-2	7	1-2
		8	8-9, 5-2	8	7-9, 3-2	8	10-9, 1-2
		9	8-11, 5-2	9	7-11, 3-2	9	10-11, 1-2

2. IF THE **#** BUTTON
ON THE "TOUCH TONE"
DAIL IS TO BE USED FOR
SPLIT-KEY FUNCTIONS, PLACE STRAP BETWEEN TERMINALS 16 AND 17.

Fig. 20—DSS Station Code Strapping on JM1 CP

DSS TELEPHONE CONSOLES HAVE A JMI CIRCUIT PACK INSTEAD OF A JN1 CIRCUIT PACK. JMI GENERATES SPLIT SIGNALS AS WELL AS "TOUCH-TONE" SIGNALS.

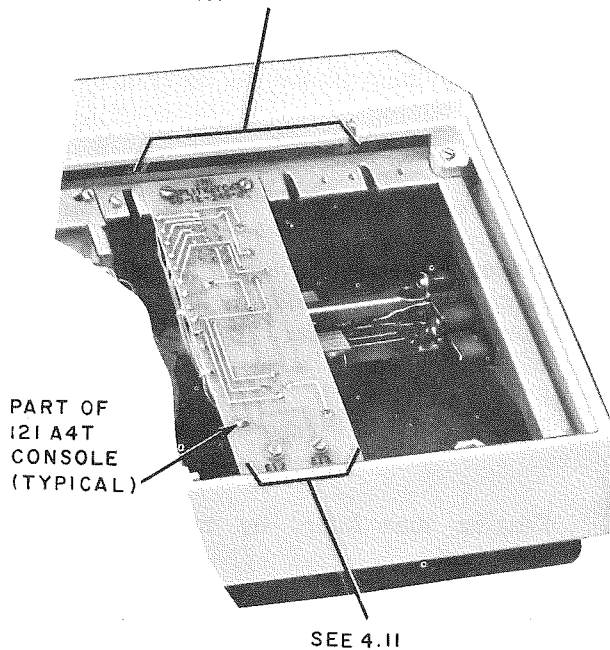


Fig. 21—Location of Split Key Tone Generator (JN1 CP) in 121A4T Telephone Console

5. INSTALLATION TESTS

5.01 The tests covered are:

- | | PAGE |
|---|------|
| A. Incoming Call—Not Split: This test checks for ringing, busy, recall dial tone, automatic split removal, temporary hold, and CC key functions. | 38 |
| B. Incoming Call—Split: This test verifies that an incoming call can be split and that open switching interval protection has been provided in the CO. | 38 |
| C. Hold: This test verifies that the telephone console(s) used with the system can hold a call on every loop. | 39 |
| D. Direct Station Selection and Busy Lamp Field: This test | |

verifies that the DSS dialer and busy lamps function correctly. 40

E. Temporary Hold: This test checks the operational paths of the temporary hold feature through all KTUs/CPs. 40

F. Hold: This test checks the operational paths of the hold feature through all KTUs/CPs. 41

G. Incoming Call: This test checks the operational paths for the audible signal and incoming loop key lamp indication through all KTUs/CPs. 42

H. Flash: This test checks the operational paths for transmission and for obtaining dial tone through all KTUs/CPs. 42

I. Line Busy Circuit: This test verifies that the line busy circuit functions correctly. 43

5.02 The tests in this part require actions and verifications at the telephone console(s), two stations, and at the cross-connect terminal. If verification fails, refer to Section 540-580-302, 50A Customer Premises System Trouble-Locating Procedures.

5.03 Follow local instructions for recording and reporting the scoring of any traffic and/or message registers caused by performing these tests.

5.04 Reference to dialing in the tests of this section means using either a rotary dial or a TOUCH-TONE dial.

5.05 On systems with two or more telephone consoles, perform all tests from each telephone console.

5.06 **Perform Tests A through D before the system is released for use by the customer.** If time permits, Tests E through I should be performed at 720A panel(s) before consoles are installed (if cross-connections have been made and CO loops are available).

STEP	ACTION	VERIFICATION
A. Incoming Call—Not Split		
1	At first station— Dial LDN of loop under test. Note: To access any loop within the same LDN hunt group, busy out the other loops. For other than LDN, dial access code of loop under test (for example, dial 0).	At console— Ringer heard. Loop key lamp flashes at 60 IPM.
2	Operate loop key associated with flashing loop key lamp.	Ringer silenced. Loop key lamp steadily lighted. Conversation satisfactory between attendant and calling party.
3	After 3 seconds— Operate CC key.	Dial tone (not interrupted) heard by attendant.
4	Dial second station.	Ringling tone heard by calling party and attendant.
5	Operate RLS key. Note: The loop must be equipped for open switching interval protection in the CO.	Loop key released. Loop key lamp flutters.
6	At second station— Called party answers.	Ringling tone silenced. Conversation satisfactory between called party and calling party. At console— Loop key lamp extinguished.
7	At first and second stations— Disconnect.	
8	Repeat Steps 1 through 7 for remaining loops.	
B. Incoming Call—Split		
1	At first station— Dial LDN of loop under test. Note: To access any loop within the same LDN hunt group, busy out the other loops. For other than LDN, dial access code of loop under test (for example, dial 0).	At console— Ringer heard. Loop key lamp flashes at 60 IPM.
2	Operate loop key associated with flashing loop key lamp.	Ringer silenced. Loop key lamp steadily lighted. Conversation satisfactory between attendant and calling party.

STEP	ACTION	VERIFICATION
3	After 3 seconds— Operate CC key.	Dial tone (not interrupted) heard by attendant.
4	Momentarily operate SPLT key.	TOUCH-TONE signals heard. Dial tone silenced.
5	Dial second station.	Ringing tone heard by attendant only.
6	At second station— Called party answers.	Ringer silenced. Conversation satisfactory between attendant and called party. Calling party excluded.
7	At console— Momentarily operate any digit key on TOUCH-TONE dial.	
8	Momentarily operate RLS key.	Loop key released. Loop key lamp flutters.

If loop key lamp does not flutter:

9a	Connect Y strap on last panel containing an AE32 or HK5 CP.	
10	At first station— Calling party disconnects.	At console— Loop key lamp continues to flutter. ♦(Verifies open switching interval protection in ESS CO.)♦
11	Operate loop key associated with fluttering loop key lamp.	Loop key lamp steadily lighted.
12	Momentarily operate DISC key.	Loop key released. Loop key lamp extinguished.
13	At second station— Called party disconnects.	
14	Repeat Steps 1 through 12 for remaining loops.	

C. Hold

1	At console— Operate loop key.	Loop key lamp steadily lighted. Dial tone heard.
2	Dial code of first station.	Ringing tone heard.
3	Momentarily operate HOLD key.	Loop key released. Loop key lamp winks at 120 IPM.

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STEP	ACTION	VERIFICATION
4	At 720A panel— Momentarily short T and R (CO) terminals (Fig. 3).	Panel test lamp winks at 120 IPM.
5	Connect (short) T and R (CO) terminals for several seconds only.	Panel test lamp extinguished. At console— Loop key lamp extinguished.
6	Repeat Steps 1 through 5 for the remaining loops.	
D. Direct Station Selection and Busy Lamp Field		
1	At console— Operate loop key.	Dial tone heard. Loop key lamp steadily lighted.
2	Momentarily operate DSS key associated with working station.	Fast sequence of tones heard. Dial tone silenced. Ringing tone heard.
3	At called station— Called station answers.	Ringing tone silenced. Busy lamp steadily lighted. Conversation satisfactory between attendant and called station.

If lamp is not steadily lighted:

- 4a Temporarily connect monitor lamp lead on 722A panel to L (DSS or BLF lamp) lead of circuit under test.

If circuit tested is defective:

- 5b Use spare circuit provided.
- 6b Remove temporary connection.
- 7b Check cross-connects to 722A panel.
- 8 Called party disconnects.
- 9 Operate DISC key.
- 10 Repeat Steps 1 through 6 for remaining stations.

E. Temporary Hold

- 1 At 722A panel—
Short DA and DB terminals on TSB.

STEP	ACTION	VERIFICATION
2	Short terminal A (TSA, C, E, or G) to terminal AR (TSB).	Panel test lamp steadily lighted.
3	Short H and GD terminals (TSB).	
4	Remove A to AR short.	
5	Remove H to GD short.	Panel test lamp flutters

If panel test lamp does not flutter:

6a	Connect Y strap in last panel containing an AE32 or HK5 CP.	
7	Apply momentary short to T and R (CO) terminals.	Panel test lamp extinguished.
8	Repeat Steps 2 through 6 for each circuit provided.	

If no further tests are to be performed:

9b	Remove DA to DB short.	
----	------------------------	--

F. Hold

1	At 720A panel— Short DA and DB terminals on TSB.	
2	Short terminal A (TSA, C, E, or G) to terminal AR (TSB).	Panel test lamp steadily lighted.
3	Short terminal A (TSA, C, E, or G) to terminal SP (TSB).	
4	Short terminals H and GD (TSB).	
5	Remove A to AR short with a clean, quick motion.	Panel test lamp lighted, either steady or winking.
6	Remove A to SP short.	
7	Remove H to GD short.	Panel test lamp winking.
8	Apply momentary short to T and R (CO) terminals.	Wink continues.
9	Apply solid short to T and R (CO) terminals.	Panel test lamp extinguished.
10	Remove T and R (CO) short.	

STEP	ACTION	VERIFICATION
11	Repeat Steps 2 through 10 for each loop circuit provided.	
<i>If no further tests are to be performed:</i>		
12a	Remove DA to DB short.	
G. Incoming Call		
1	At 720A panel— Short DA and DB terminals on TSB.	
2	Place 24-volt dc buzzer across RC and B1 terminals.	
3	Place 1013A hand test set (or equivalent) in MONITOR position, and connect clips to T and R (CO) terminals.	
4	Operate hand test set key to TALK position.	Dial tone heard.
5	Dial ringback code.	Dial tone silenced.
6	Operate hand test set key to MONITOR position, and remove clips.	Panel test lamp flashes. Buzzer heard.
7	Apply momentary short to T and R (CO) terminals.	10-second time-out operating, then— Panel lamp extinguished. Buzzer silenced.
8	Repeat Steps 2 through 7 for each loop circuit provided.	
9	Following last loop test— Remove dc buzzer from RC and B1 terminals.	

If no further tests are to be performed:

10a Remove DA to DB short.

H. Flash

1	At 720A panel— Short DA and DB terminals on TSB.	
2	Place 1013A hand test set (or equivalent) in MONITOR position, and connect clip to T and R (STA) terminals.	
3	Short terminal A (TSA, C, E, or G) to terminal AR (TSB).	Panel test lamp steadily lighted.

STEP	ACTION	VERIFICATION
4	Operate hand test set key to TALK position.	Dial tone heard.
5	Apply momentary short to CC and GRD terminals.	Dial tone interrupted for 1/2 second.
6	Place 1013A hand test set in MONITOR position, and remove clips from T and R (STA) terminals.	
7	Remove A to AR short.	
8	Remove DA to DB short.	

I. Line Busy Circuit

If circuit under test is connected to idle working CO T and R:

1a	At 722A panel, connect monitor lamp lead to L lead of circuit under test.	Monitor lamp extinguished.
----	---	----------------------------

If monitor lamp is not extinguished:

2b	Check power supply ground.	
3b	Check for T and R reversal on circuit under test.	
4b	Check for defective HK6 CP.	
5	Short T and R terminals of circuit under test.	Monitor lamp steadily lighted.
6	Remove T and R short.	Monitor lamp extinguished within 3 seconds.

If circuit under test is unused:

7c	At 722A panel, connect monitor lamp lead to L lead of circuit under test.	Monitor lamp may or may not remain extinguished.
8	Connect T terminal of circuit under test to -24V terminal.	Monitor lamp steadily lighted.

If panel monitor lamp is not steadily lighted:

9d	Check for power to console (-24V, -11V, GRD) from 722A panel (Fig. 5, 15, and 16).	
10d	Check for defective HK6 CP.	
11	Remove T terminal from -24V terminal, and connect to ground terminal.	Monitor lamp extinguished within 3 seconds.

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STEP	ACTION	VERIFICATION
12	Remove ground connection.	Monitor lamp may or may not remain extinguished.
13	Remove monitor lamp lead connection.	
14	Repeat Steps 1 through 8 for remaining circuits.	

6. REFERENCES

6.01 Refer to the following sections for further information concerning the 50A CPS:

966-102-100

2-Wire No. 1 Electronic Switching System—Centrex Service—General Description

◆966-202-100

Centrex Central Office Service—General Description—No. 2 Electronic Switching◆

SECTION

TITLE

◆167-456-101 103B Power Unit Identification, Installation, and Connection◆

981-300-100

50A Customer Premises System—General Descriptive Information

◆167-457-101 104B Power Unit Identification, Installation, and Connection◆

6.02 Refer to the following sections for general information:

231-118-333 Overall Procedures for Adding a CTX-CO or PBX-CO Customer—No. 1 ESS

SECTION

TITLE

◆231-090-178 50A CPS Attendant Position Feature Document—2-Wire No. 1 Electronic Switching System◆

◆460-100-400

Station Protection and Grounds◆

518-010-101

Centralized Key Telephone Installations

◆232-190-345 Simplified Console Attendant (50A CPS, Call Directors, and Keysets) No. 2 Electronic Switching System◆

518-215-400

Key Telephone Units—400 Series—Identification

504-220-151 Telephone Consoles—121-, 131-, and 151-Types—Identification

6.03 ◆The following list of acronyms is used in this section:

◆518-010-105 Key Telephone Systems Grounding and Special Protection Requirements◆

BLF

Busy Lamp Field

CD

Circuit Description

CO

Central Office

CP

Circuit Pack

CPS

Customer Premises System

540-580-301 Attendant and Station Equipment—Method of Operation—50A Customer Premises System

DSS

Direct Station Selection

ESS

Electronic Switching System

540-580-302 50A Customer Premises System—Trouble-Locating Procedures

KTU

Key Telephone Unit

809-150-150 50A Customer Premises System Equipment Design Requirements—PBX Systems

LDN

Listed Directory Number

PBX	Private Branch Exchange	T	Tip
R	Ring	TGB	Trunk Group Busy
SD	Schematic Drawing	WATS	Wide Area Telephone Service

