14A COMMUNICATION SYSTEM

(COM KEY® 1434)

CONTENTS PAGE

1. GENERAL

1.01 This section contains identification, installation, connection, and operation information for the 14A Communication System.

1.02 The 14A Communication System will accommodate a maximum of 14 CO/PBX lines and 34 stations. Switching apparatus for the system is housed in a 580A KSU. Telephone sets (833A and 2833A) are special 20-button sets providing basic services such as pickup, hold and illumination, three path intercom, voice and tone signaling, multiline conferencing, button restoration and recall. The telephone sets are available in ivory only and are shipped with a disposable faceplate. Colored faceplates must be ordered separately to replace the disposable faceplate. Available optional features are privacy, privacy release, station restriction, paging (with or without background music), power failure transfer, music-on-hold (utilizing customer-provided music source), intercom preset conference, station busy console with DSS, station busy console with message waiting, TOUCH-TONE® dialing and speakerphone.

1.03 The 833C and 2833C telephone sets are attendant station sets and provide the same features as the 833A and 2833A telephone sets except night transfer is standard on the set and privacy release is not available.

1.04 All incoming CO/PBX calls are routed to one of the 34 stations which is designated as the attendant station (code 0). The attendant station is the only station factory-wired for CO/PBX ringing and night transfer. The attendant answers incoming CO/PBX calls then notifies the called parties via intercom voice signaling. The called party performs the action required. All stations have access to all lines in the system, and any station may be optionally wired for CO/PBX ringing.

1.05 This issue of the section is based on:

CD- and SD-69653-01, Issue 1—14A Communication System

CD- and SD-69655-01, Issue 1—833A and 2833A Telephone Circuits for Use with 14A Communication System

CD- and SD-69657-01, Issue 1—7A1 and 7B1 Station Busy Selector Consoles for Use with 14A Communication System

If this section is to be used with equipment or apparatus reflecting a later issue of the drawing(s), reference should be made to the CDs and SDs to determine the extent of the changes and the manner in which the section may be affected.

2. IDENTIFICATION

2.01 The 14A Communication System provides 14 CO/PBX lines, up to 34 stations, and 3 intercom paths. A brief description of the system features is listed:

BASIC FEATURES

(a) ***Pickup, Hold, and Illumination***—Standard key system pickup, hold, and illumination including wink hold.

(b) ***Three Path Dial Intercom***—Each intercom path is associated with an individual button and lamp on each telephone set.

(c) ***Multiline Conferencing***—Two or more CO/PBX lines may be conferenced by ***simultaneously*** depressing the line buttons of the lines to be conferenced. Transmission losses will be encountered on conferenced lines.

Note: Intercom and CO/PBX lines cannot be conferenced together.

(d) ***Tone and Voice Signaling***—CO/PBX line alerting signal will be via a tone source rather than a conventional ringer. Intercom alerting signal is a spurt of tone audible to both called and calling stations. Calling station may then voice page the called party.

(e) ***Button Restoration***—Returns all depressed buttons to the unoperated position when the handset is replaced.

(f) ***Night Transfer***—Transfers CO/PBX ringing signal from the attendant station (code 0) to a designated secondary station.

Night transfer is factory-wired on attendant station telephone sets (833C and 2833C).

(g) ***Recall***—Performs same function as switchhook flash without restoring buttons.

OPTIONAL FEATURES

The following features should be implemented only when specified in the service order.

(h) ***Privacy***—Prevents a station from bridging into a CO/PBX call in progress. Intercom lines have no privacy.

(i) ***Privacy Release***—Allows a station to permit other stations (privacy equipped) that have been locked out of a call to bridge into the conversation.

Privacy release is not available on attendant station telephone sets (833C and 2833C).

(j) ***Station Restriction***—Prevents selected stations from dialing outgoing calls on CO/PBX lines.

(k) ***Paging***—Three separate paging amplifiers may be provided. Each paging amplifier may drive up to seven loudspeakers. A paging amplifier or combination of paging amplifiers may be activated by dialing one of the digits 4, 5, and 6 depending on how the zone paging is programmed.

(l) ***Power Failure Transfer***—In the event of power failure, ringing is cut through to line ringers which must be installed at the selected locations on a one per line basis.

(m) ***Music-On-Hold***—Provides music from customer-provided music source to calls placed on hold.

(n) ***Intercom Preset Conference***—Permits up to five preselected stations to be signaled simultaneously over the intercom by tone and voice signaling. ***Code 39 is dedicated to preset conference and must be forfeited when preset conference is used.***

(o) ***Station Busy-Selector Console (7A1) with DSS***—Provides station busy indication and direct station selection on an intercom path.

(p) ***Station Busy Selector Console (7B1) With Message Waiting***—Provides station busy indication and message waiting feature.

(q) ***TOUCH-TONE® Set***—Provides TOUCH-TONE dialing. Rotary and TOUCH-TONE dial sets may be intermixed in the system.

(r) ***Speakerphone***—May be added to stations to provide standard speakerphone service.

(s) ***CO/PBX Ringing***—One or more stations may be optionally wired for audible signal on incoming CO/PBX calls. This is in addition to the attendant station (code 0).

2.02 All options are implemented by:

- Plugging in appropriate KTU's
- Connecting or removing straps
- Terminating connector cables from telephone sets on designated connecting blocks in the KSU
- Wiring changes in the telephone set.

2.03 The KTUs and power unit are mounted in the 580A KSU (Fig. 1).

2.04 All wiring connections are made on the connecting blocks located in the KSU (Fig. 2). Since all stations pick up all lines on the same button at each telephone set, all equipment connections are factory-wired to the connecting blocks.

All station connections are made on the station connection field blocks using standard color code cut down. All connector cable leads should be cut down.

2.05 The column on which a station is cut down determines the intercom code assigned to that station (Fig. 3). Intercom codes available are codes 0 and 7 through 39. Codes 1, 2, and 3 are used as transfer digits and codes 4, 5, and 6 are used for paging.

2.06 833A, 833C, 2833A, and 2833C telephone sets are special 20-button sets that are required for this system and cannot be used with other systems.

580A KSU

2.07 The 580A KSU (Fig. 1 and 2) provides the following features:

- Arranged for floor mounting.
- 424B, 444A, 453B, 454A, 455A, and 456A KTUs are shipped with KSU.
- Internally mounted 66-type connecting blocks for option and station connections.
- Internally mounted power supplies (29C1 and 67C1) and interrupter (KS-15900, L1).
- Designation strip holder and tab assembly serves as a retainer to lock KTUs in the connectors.
- Fuse panel (Table A) provides power distribution to connectors and station blocks for lamp and fusing functions.
- Status lamps (Table B) indicate status of CO/PBX and intercom lines.

2.08 Fifteen 66-type connecting blocks are mounted in the KSU.

(a) Connecting block 1 (Fig. 4) provides the terminals for terminating power failure transfer, CO ringing, preset conference, and night transfer.

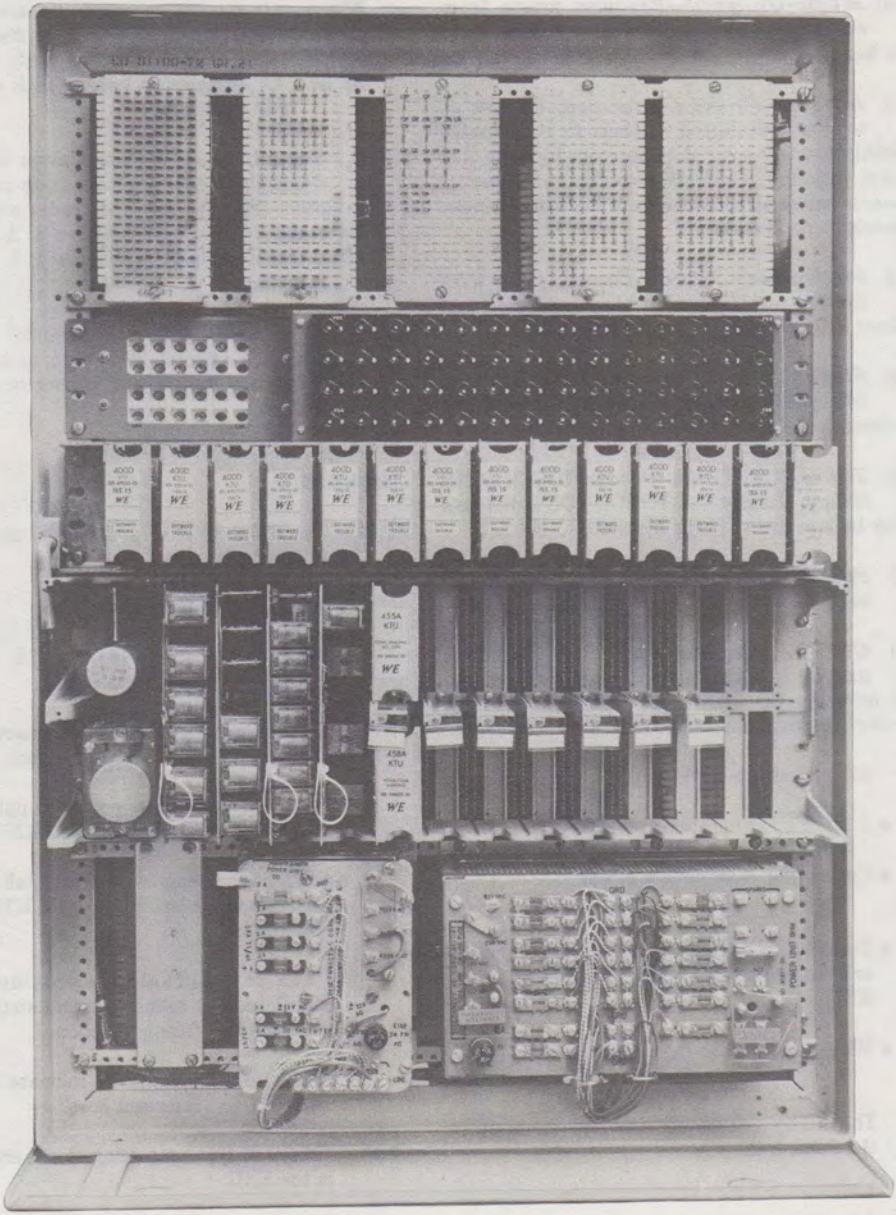


Fig. 1—580A KSU (Cover Removed)

Fig. 2—580A KSU (Carrier Open)

(b) Connecting block 2 (Fig. 5) contains the diode arrangement for intercom preset conference and common audible signaling. Terminals are provided for terminating paging speakers.

(c) Connecting block 3 (Fig. 6) contains the diodes and terminals necessary to provide zone paging.

(d) Connecting blocks 4 and 5 (Fig. 7) contain the polarity guard diodes for the CO/PBX lines.

(e) Connecting blocks 6 and 7 (Fig. 3) provide terminals for connecting station codes 0 (attendants station) and 7, the incoming CO/PBX lines and the optional message waiting or DSS consoles.

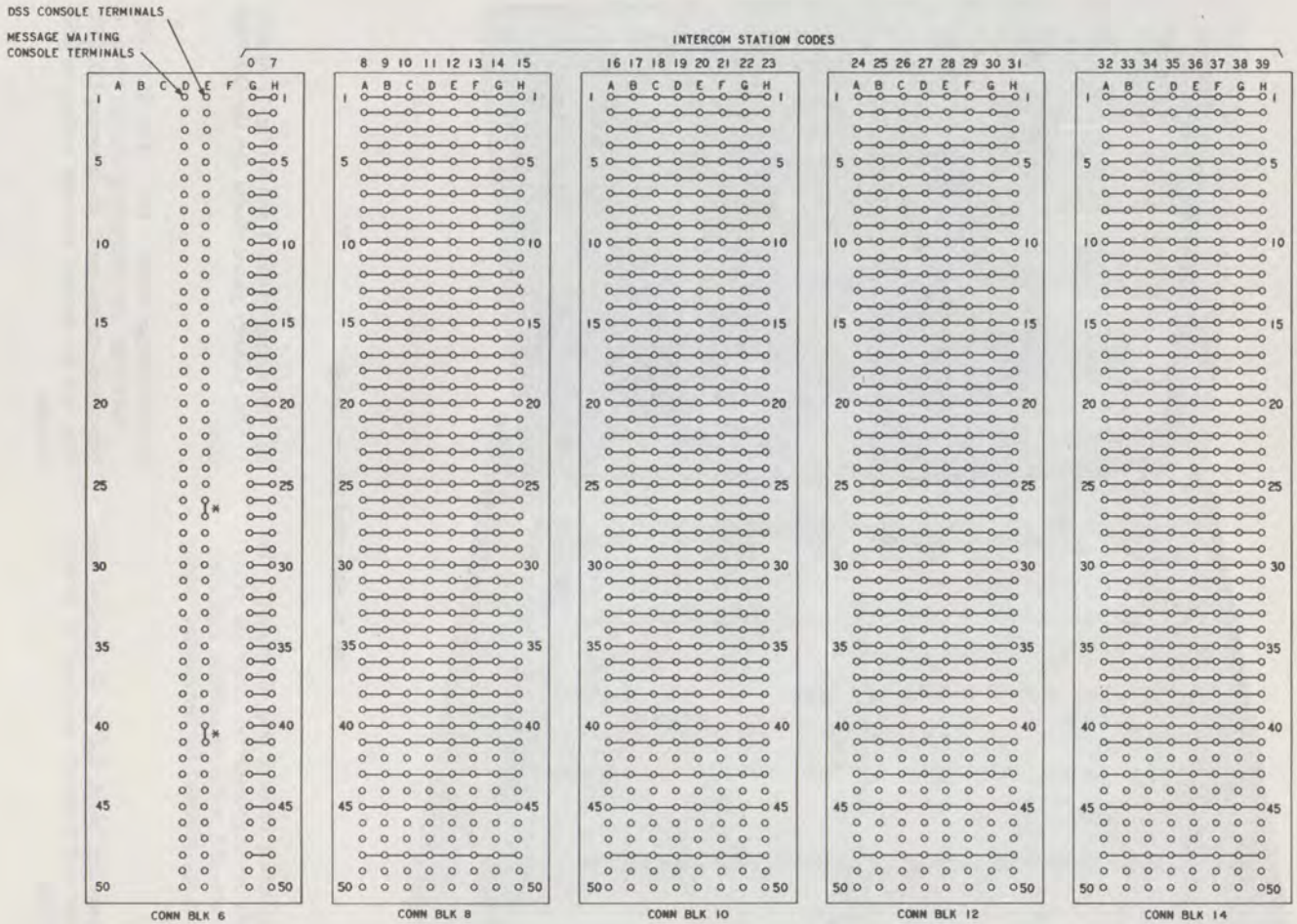
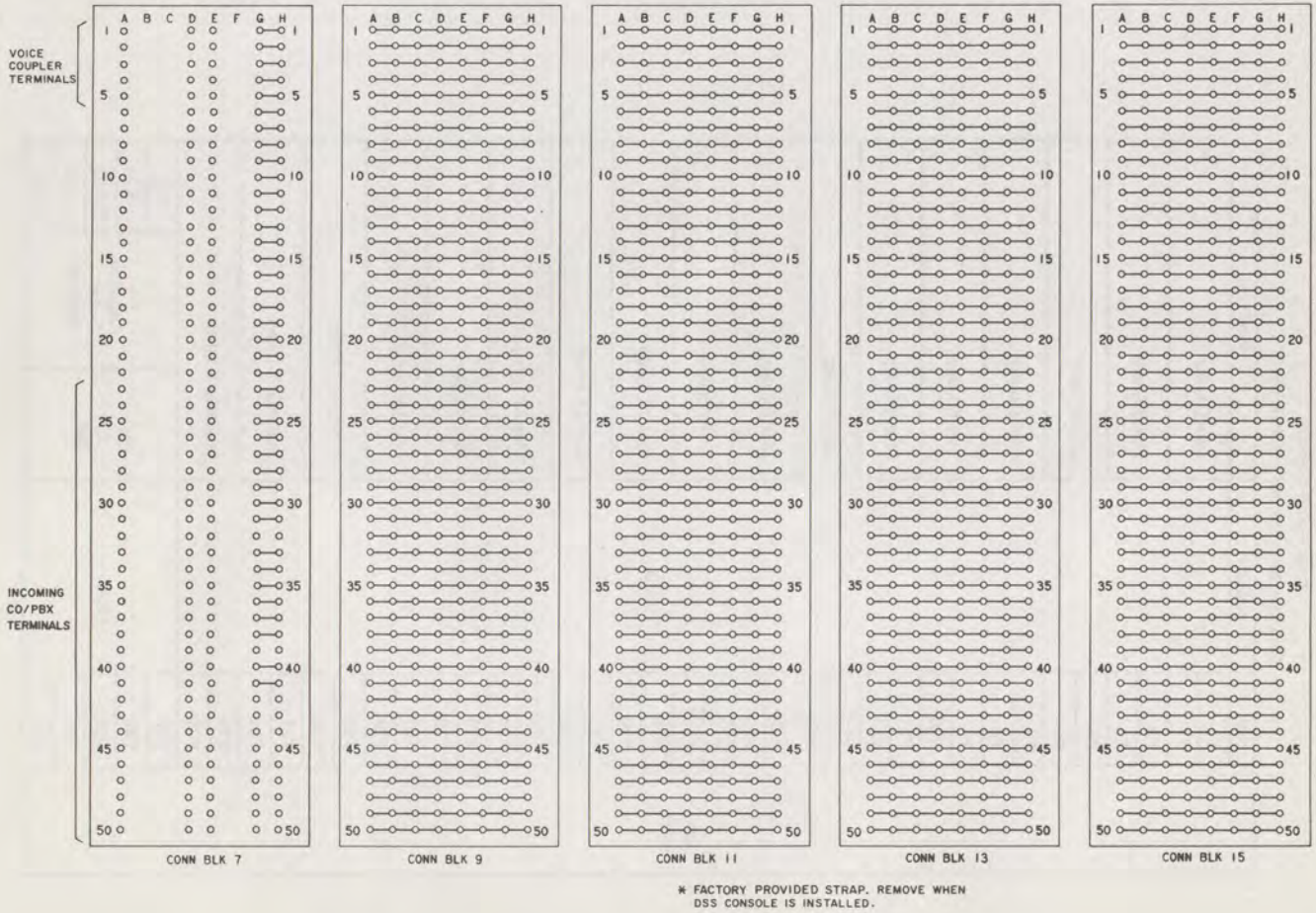


Fig. 3—Terminal Arrangement for Connecting Blocks 6 Through 15 (Sheet 1)



* FACTORY PROVIDED STRAP. REMOVE WHEN DSS CONSOLE IS INSTALLED.

Fig. 3—Terminal Arrangement for Connecting Blocks 6 Through 15 (Sheet 2)

TABLE A

FUSE FUNCTION FOR
580A KSU, 29C1 AND 67C1 POWER UNITS

	FUSE	CAPACITY	FUNCTION		
580A KSU	F1	1 1/3A	Line 1 Lamp		
	F2				
	F3		Line 2 Lamp		
	F4				
	F5		Line 3 Lamp		
	F6				
	F7		Line 4 Lamp		
	F8				
	F9		Line 5 Lamp		
	F10				
	F11		Line 6 Lamp		
	F12				
	F13		Line 7 Lamp		
	F14				
	F15		Line 8 Lamp		
	F16				
	F17		Line 9 Lamp		
	F18				
	F19		Line 10 Lamp		
	F20				
	F21		Line 11 Lamp		
	F22				
	F23		Line 12 Lamp		
	F24				
	F25		Line 13 Lamp		
	F26				
	F27		Line 14 Lamp		
	F28				
	F29		Intercom 1 Lamp		
	F30				
	F31		Intercom 2 Lamp		
	F32				
	F33		Intercom 3 Lamp		
	F34				
	F35	1/2A	−24V C Bat	Set Amplifier for Stations	1-7
	F36				8-14
	F37				15-21
	F38				22-28
	F39				29-34

TABLE A (CONT)

FUSE FUNCTION FOR
580A KSU, 29C1 AND 67C1 POWER UNITS

	FUSE	CAPACITY	FUNCTION		
580A KSU	F40		Spare		
	F41	1/2A	−24V B Bat	Privacy Ckts & DSS	
	F42				
	F43				
	F44				
	F45				
	F46	1/2A	−24V B Bat	Paging Amplifier 1	
	F47			Paging Amplifier 2	
	F48			Paging Amplifier 3	
	F49		Used as Terminals, Not Available for Fusing		
	F50				
	F51				
	F52				
	F53				
	F54		Spares		
	F55				
	F56				
29C1 Power Unit	F1	3A	Intercom Supply		
	F2				
	F3	3A	10V±	Lamp Driver Ckt	1st
	F4				
	F5				2nd
	F6		10V±, Flash, Wink, Steady		
	F7	2A			
	F8		Station Busy		
	F9		−24V "B" Bat	Line Ckt 1-7	
	F10			Line Ckt 8-14	
	F11			Intercom	
	F12			Power Failure Ckt	
	F13			Station Sets	
	F14			Paging Ckt	
	F15		−24V, A Bat, Talk		
67C1 Power Unit	F1	3A	10V±	Driver Ckt	4th
	F2				3rd
	F3				2nd
	F4				
	F5	3A	10V±	Flash, Wink, Steady	
	F6	2A		Message Waiting	

TABLE B

STATUS LAMP FUNCTION

LAMP DESIG	FUNCTION
L1	1st CO/PBX Line
L2	2nd CO/PBX Line
L3	3rd CO/PBX Line
L4	4th CO/PBX Line
L5	5th CO/PBX Line
L6	6th CO/PBX Line
L7	7th CO/PBX Line
L8	8th CO/PBX Line
L9	9th CO/PBX Line
L10	10th CO/PBX Line
L11	11th CO/PBX Line
L12	12th CO/PBX Line
L13	13th CO/PBX Line
L14	14th CO/PBX Line
L15	1st Intercom Path
L16	2nd Intercom Path
L17	3rd Intercom Path
L18	SPARE
L19	
L20	
L21	
L22	
L23	
L24	

(f) Connecting blocks 8 through 15 (Fig. 3) provide terminals for connecting station codes 8 through 39.

KEY TELEPHONE UNITS

2.09 The following units provide the circuitry for the 14A Communication System.

400-TYPE KTU (CO OR PBX LINE CIRCUIT)

2.10 The 400-type KTU is a 4-inch unit which provides a key telephone set with CO or PBX line service.

424B KTU (DIAL INTERCOM 19-CODE SELECTOR CIRCUIT)

The 424B KTU is not interchangeable with the 424A KTU in this system.

2.11 The 424B KTU is an 8-inch dial selective intercom unit. In this system, it provides the following operating features:

- Nineteen dial codes (single-digit and 2-digit codes)
- Rotary dial selection.

Note: In the 14A Communication System, the first digits of the 2-digit codes are 1, 2, and 3. Therefore 1, 2, and 3 are not available as single-digit codes. Codes 4, 5, and 6 are dedicated to paging which leaves codes 0 and 7 through 39 available for station codes.

440A KTU (TOUCH-TONE ADAPTER CIRCUIT)

2.12 The 440A KTU is an 8-inch unit that provides TOUCH-TONE dialing when used in conjunction with the 424B KTU.

The 440A KTU is the only TOUCH-TONE adapter usable with this system.

444A KTU (SELECTOR EXTENDER CIRCUIT)

2.13 The 444A KTU is an 8-inch 80-contact unit which expands the 19 codes of the 424B KTU (19-code selector circuit) to a total of 36 codes. When using the 444A KTU, two more transfer digits are factory assigned, and these digits may not be used as station codes. Digits 2 and 3 are used as the second and third transfer digits.

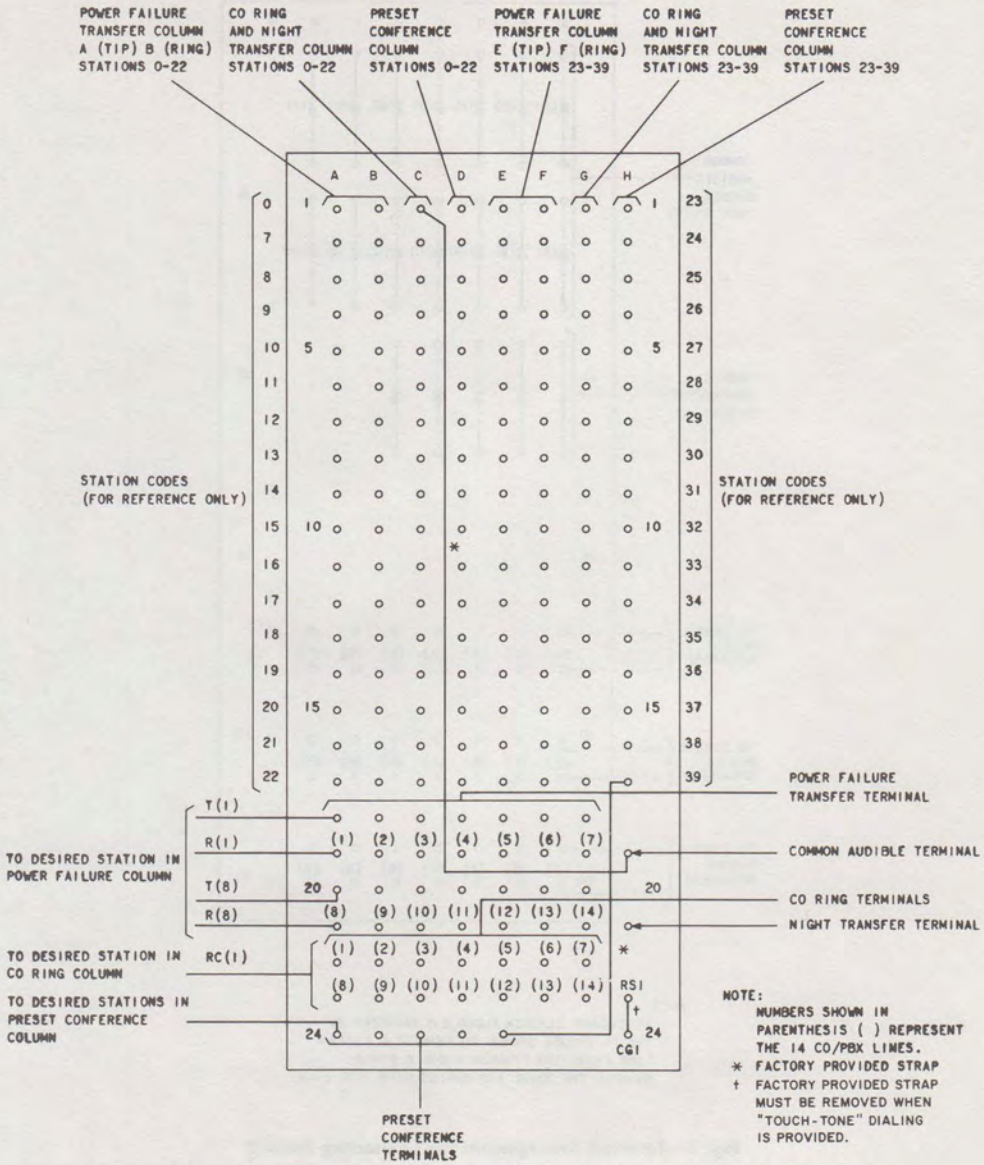
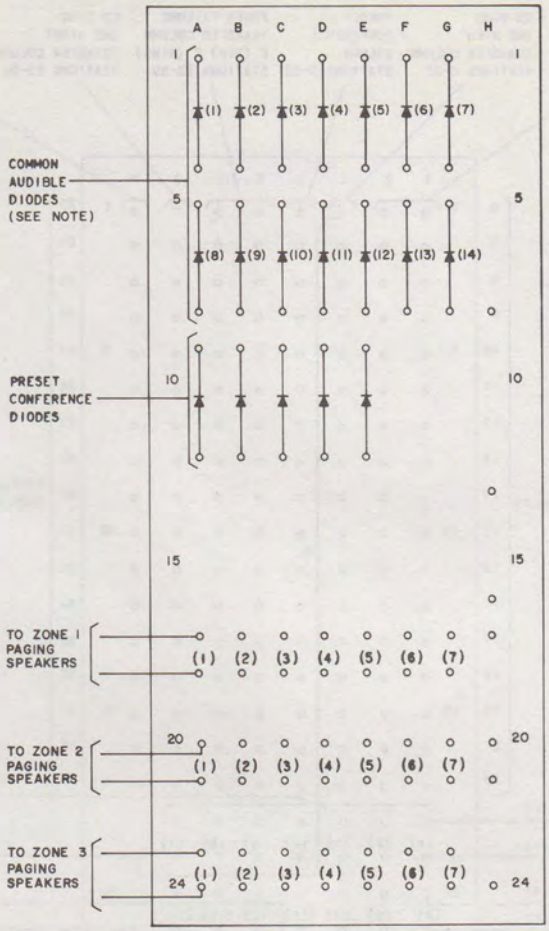


Fig. 4—Terminal Arrangement for Connecting Block 1



NOTE:
ATTENDANT COMMON AUDIBLE IS PROVIDED BY THE 14 DIODES SHOWN. TO REMOVE A CO/PBX LINE FROM THE COMMON AUDIBLE GROUP, REMOVE THE DIODE ASSOCIATED WITH THAT LINE.

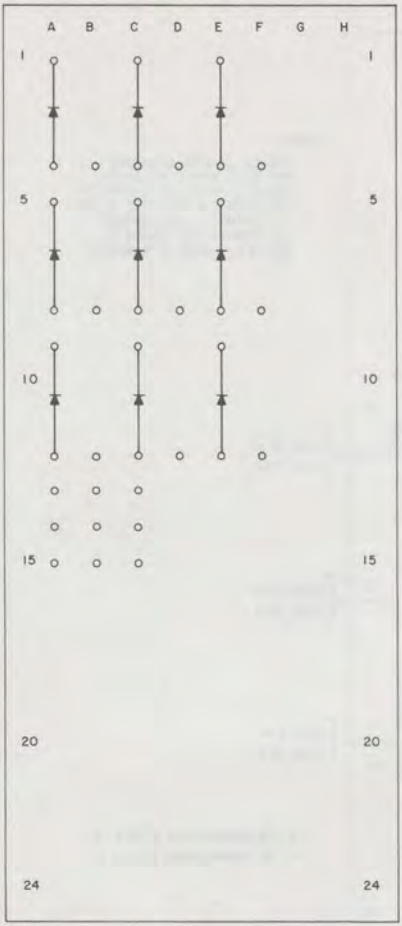
Fig. 5—Terminal Arrangement for Connecting Block 2

451A KTU (MUSIC-ON-HOLD) CIRCUIT

2.14 The 451A KTU is a 4-inch unit that connects a customer-provided source of music to up to 7 lines placed on hold.

452A KTU (POWER FAILURE TRANSFER CIRCUIT)

2.15 The 452A KTU is a 4-inch unit that automatically cuts through up to seven CO/PBX lines to external line ringers in the event of power failure.



NOTE:
SEE TABLE G FOR ZONE PAGING CONNECTIONS.

Fig. 6—Terminal Arrangement for Connecting Block 3

453B KTU (LAMP DRIVER CIRCUIT)

2.16 The 453B KTU is a 4-inch unit that provides the heavy duty contacts necessary to drive the system lamps. Each KTU can serve up to 7 CO/PBX lines.

454A KTU (3-PATH INTERCOM ACCESS CIRCUIT)

2.17 The 454A KTU is an 8-inch unit that contains three separate intercom paths. Path selection is based on operation of the associated intercom button on the key telephone set. The unit also provides dial tone, seizes the selector and provides flashing lamp signal during selection and steady lamp during busy mode.

455A KTU (TONE RINGING SIGNAL GENERATOR CIRCUIT)

2.18 The 455A KTU is a 4-inch unit that contains the tone ringing generator for CO/PBX signaling.

456A KTU (VOICE AND TONE ALERTING CIRCUIT)

2.19 The 456A KTU is a 4-inch unit that provides the following features on intercom calls:

- Ringback tone to calling party
- Tone alerting signal to called party
- Voice signaling to called party
- Input signal to paging amplifier.

457C KTU (PAGING AMPLIFIER CIRCUIT)

2.20 The 457C KTU is a 4-inch unit that contains the paging amplifier circuitry and the background music circuit. The background music circuit connects the voice coupler for the customer-provided music source to the paging speakers when the paging circuit is not in use.

33A VOICE COUPLER

2.21 This interconnecting unit (Fig. 8) provides the termination points for the customer-provided music source used with music-on-hold and background music. It is wall mounted externally from the KSU. A potentiometer (with screwdriver adjustment slot) controls the level of the background music. Two fuses are provided to protect against hazardous voltages from the customer- provided music source.

TELEPHONE SETS

833A Telephone Set

2.22 The 833A telephone set (Fig. 9) is a rotary dial, 20-button key telephone set designed for use with the 14A Communication System. The

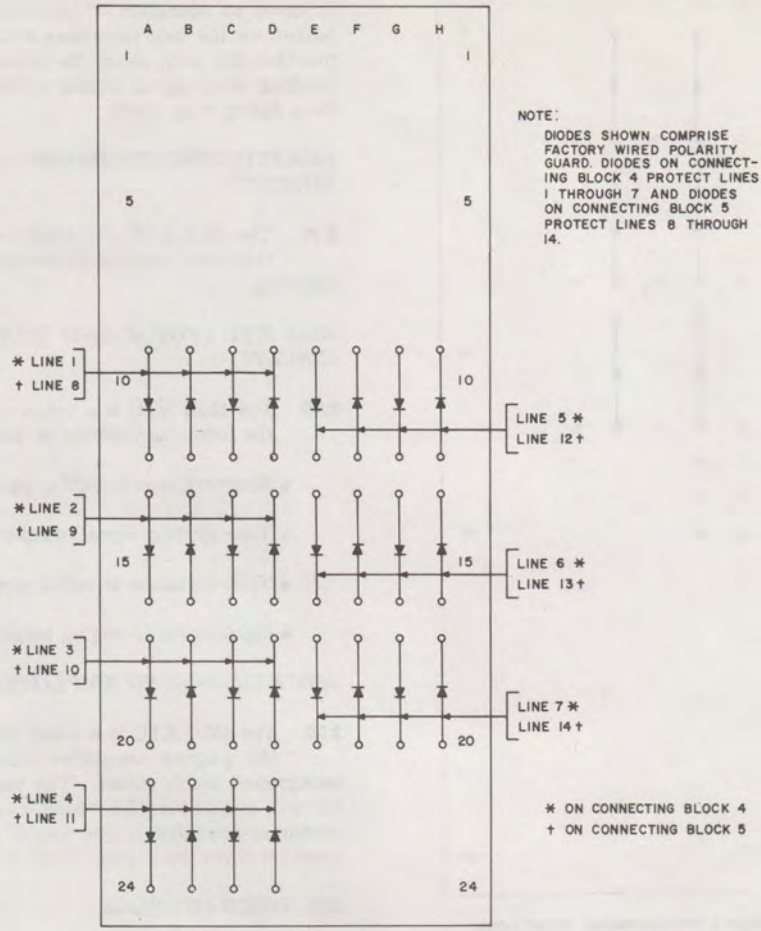


Fig. 7—Terminal Arrangement for Connecting Blocks 4 and 5

set is equipped with a loudspeaker to provide tone and voice signaling. A volume control controls the level of the tone and voice signaling. A multibutton depression feature allows conferencing two or more CO/PBX lines by simultaneously depressing the buttons associated with the lines to be conferenced. Button restoration restores all depressed buttons to the unoperated position when the handset is replaced. Recall provides the same function as switchhook flash.

833C Telephone Set

2.23 The 833C telephone set is the same as the 833A telephone set except that it is designed for use at the attendant station only. Night

Fig. 8—33A Voice Coupler

Fig. 9—833A Telephone Set

transfer is a factory-provided feature and privacy release is not available on this telephone set.

2833A Telephone Set

2.24 The 2833A telephone set (Fig. 10) is the same as the 833A telephone set except it is equipped with a TOUCH-TONE dial.

Fig. 10—2833A Telephone Set (Housing Removed)

2833C Telephone Set

2.25 The 2833C telephone set is the same as the 833C telephone set except it is equipped with a TOUCH-TONE dial.

2.26 The telephone sets may be equipped with the following optional features:

(a) ***Privacy***—requires installation of a privacy circuit (D-180486).

(b) ***Privacy Release***—button is furnished in the telephone set. To implement the option, leads in the set must be changed.

(c) ***Station Restriction***—accomplished by adding a diode and reversing four leads in a rotary dial set. If station is TOUCH-TONE dial equipped, only four leads in the set must be reversed.

CONSOLES

7A1 Selector Console (Station Busy Console With DSS)

2.27 The 7A1 selector console (Fig. 11) has a 33-button DSS field with station busy lamps. Four other buttons in the key field are used: three as page buttons and the other as an intercom recall button. Three buttons are not used. The console is normally used in addition to the attendants set to provide DSS on the intercom.

Fig. 11—7A1 Selector Console

7B1 Selector Console (Station Busy Console With Message Waiting)

2.28 The 7B1 selector console (Fig. 12) has a 33-button message waiting field with station busy lamps. Seven buttons are not used. The console is normally used in addition to the attendants set to provide the message waiting feature.

Note: Only one selector console may be used in the same system.

ORDERING GUIDE

- Cable, Connector, A50B (order one per station; length must be specified).
- Plate, Face, 833A- or 2833A-* (order as required).
- Set, Key Telephone, 833A-; 833C-; 2833A- or 2833C-50 (order as required).

Note: Telephone sets are shipped with disposable faceplates.

- Unit, Key Service, 580A (424B, 444A, 453B, 454A, 455A and 456A KTUs are furnished with KSU).

P-40J328 (4 ft)
P-40J329 (6 ft)
P-40J099 (12 ft)
} Cord, Power (order desired length)

- Unit, Key Telephone, 400D (CO/PBX Line Circuit) (order as required).

Fig. 12—7B1 Selector Console

(a) ***Optional Apparatus (order as required):***

- Console, Selector, 7A1-50 (Station Busy Console with DSS).
- Console, Selector, 7B1-50 (Station Busy Console with Message Waiting).
- Coupler, Voice, 33A (Order when music-on-hold or background music is provided.)
- Diode, KS-15724, L1 (Order one for each rotary dial station to be restricted.)
- Kit of Parts, D-180486 (Privacy Circuit) (Order one for each station to be locked out.)
- Ringer, E1C (Order one for each line to be wired for power failure ringing.)
- Loudspeaker, KS-16846, L2 (Order as required for outside paging.)
- Loudspeaker, Indoor, K8 (Order as required for indoor paging.)
- Speakerphone, 3B (Order one of each for each station to be equipped with speakerphone.)

Cord, D10R-* (Specify length 1 ft 4 in., 9 ft, 12 ft, or 25 ft)

Loudspeaker, 760A-*

Transformer, 2012B

Transmitter, 666B-*

Unit, Control, 55B

- Speakerphone, 4A (Order one of each for each station to be equipped with speakerphone.)

Adapter, 223A-49 (Includes M16C and M2FG Cords).

Loudspeaker, 108A-*

Transmitter, 680A-*

Unit, Power, 85B1-49

- Unit, Key Telephone, 440A (TOUCH-TONE Adapter Circuit).
- Unit, Key Telephone, 451A (Music-on-Hold Circuit) (Order as required.)
- Unit, Key Telephone, 452A (Power Failure Transfer Circuit) (Order as required.)
- Unit, Key Telephone, 457C (Paging Amplifier Circuit) (Order as required.)

(b) ***Replaceable Components***

580A KSU

- Fuse, 24B (3A)
- Fuse, 24C (2A)
- Fuse, 24F (5A)
- Fuse, 70A (1-1/3A)
- Fuse, 70G (1/2A)
- Fuse, 70H (3/4A)
- Interrupter, KS-15900, L1
- Lamp, 51A
- Unit, Key Telephone, 424B (19-Code Selector Circuit)
- Unit, Key Telephone, 444A (Selector Extender Circuit)
- Unit, Key Telephone, 453B (Lamp Driver Circuit)
- Unit, Key Telephone, 454A (3-Path Intercom Access Circuit)
- Unit, Key Telephone, 455A (Tone Ringing Signal Generator Circuit)
- Unit, Key Telephone, 456A (Voice and Tone Alerting Circuit)
- Unit, Power, 29C1
- Unit, Power, 67C1

33A Voice Coupler

- Fuse, 35P (3/4A)

833A, 833C, 2833A, and 2833C Telephone Sets

- Base, 833A (for 833A and 833C telephone set)
- Base, 2833A (for 2833A and 2833C telephone set)
- Cord, Handset, H4CJ-50
- Cord, Mounting, D100P-87
- Dial, 8C (for 833A and 833C telephone set)
- Dial, 35C3A (for 2833A and 2833C telephone set)
- Housing, 833A-50
- Key, 647K5
- Key, 647P5C (for 833A and 2833A telephone set)
- Key, 647N5C (for 833C and 2833C telephone set)
- Lamp, 51A
- Plate, Face, 833A-* (for 833A and 833C telephone set)

- Plate, Face, 2833A-* (for 2833A and 2833C telephone set)
- Set, Hand, G3A6-50

7A1 and 7B1 Selector Consoles

- Base, 7A1 (for 7A1 selector console)
- Base, 7B1 (for 7B1 selector console)
- Cord, Mounting, D100J-87
- Housing, 7A1-50
- Key, 647J5 (for 7A1 selector console)
- Key, 647J5C (for 7A1 selector console)
- Key, 647C5 (for 7B1 selector console)
- Lamp, 51A
- Plate, Face, 7A1-*

*Refer to Table C for color suffix.

3. INSTALLATION

PLANNING

3.01 Select location for the KSU in accordance with the following:

- Customers approval and best interest
- Accessibility with adequate illumination for maintenance
- With space for gate to swing open and space for cables to enter KSU
- As close as practicable to stations being served
- Near commercial ac power receptable
- Clean, dry, well ventilated and free from flammable or corrosive fumes
- Avoid locations which would subject the equipment to extreme temperatures.

3.02 Customer should provide a commercial ac power receptacle in accordance with the following:

- Not under control of a switch
- Separately fused
- Receptacle should be grounded 3-wire type.

3.03 Refer to the following sections for additional information required to plan the installation of this system.

- 518-010-105, KTS, Grounding and Special Protection Requirements
- 512-620-100, Speakerphone System—3-Type
- 512-700-100 4A Speakerphone System

3.04 Select appropriate apparatus (see Ordering Guide, Section 2) according to job requirements.

INSTALLING

3.05 Use care when unpacking to prevent damage to components.

3.06 Install the 14A Communication System as follows:

580A KSU

Caution: The 580A KSU weighs approximately 230 pounds excluding the plug-in units and requires extreme care in unpacking and handling to avoid personal injury or damage to the apparatus.

3.07 The lift-off cover should be removed and the hinged gate securely latched (closed) prior to moving or lifting the apparatus cabinet for installation purposes.

Caution: Accidental opening of the gate could result in personal injury or damage to the apparatus. During installation the gate should be supported when open.

3.08 Install KSU as follows:

(1) Place cabinet in selected location and level.

TABLE C

COLOR ORDERING GUIDE

LOUDSPEAKER, TRANSMITTER	TELEPHONE SETS, SELECTOR CONSOLES, HANDSETS, HOUSINGS, HANDSET CORDS		FACEPLATES		
SUFFIX		COLOR	SUFFIX	COLOR	*
−3		Black			
−50	−50	Ivory	108	Teak	Front
			109	Walnut	Back
			110	Avocado	Front
			111	Gold	Back
			112	Orange	Front
			113	Brown	Back
			114	Red	Front
			115	Blue	Back
			118	Black	Front
			109	Walnut	Back
−51		Green			
−53		Red			
−56		Yellow			
−58		White			
−60		Light Beige			
−62		Aqua Blue			

* TOUCH-TONE dial sets and console faceplates are reversible. Rotary dial faceplates are not reversible. Colors are paired as shown by front and back designation.

(2) Connect the circuit ground to an approved ground. A No. 14 gauge wire should be attached from the LOC GRD terminal of the power units to an approved local ground. If a 3-wire grounded receptacle is not available, a ***frame ground*** (No. 14 gauge wire) must be connected from the case or frame of the power units to an approved local ground. The ground wire should follow the same path as the power cord and use the separate cable tie provided. ***Do not strap the circuit ground to the frame or case of the power unit. The susceptibility of surge damage to semiconductor components used in 400-series KTUs require that grounding procedures be followed. Properly grounded installations will minimize service failures that can result from surge voltages or differences between dissimilar grounds.***

(3) Terminate incoming CO/PBX lines. See Fig. 13.

(4) Terminate station cables. See Fig. 14.

(5) Place or remove option straps (if required).

(6) Install power cord. ***Do not connect to AC source at this time.***

(7) Close and latch gate.

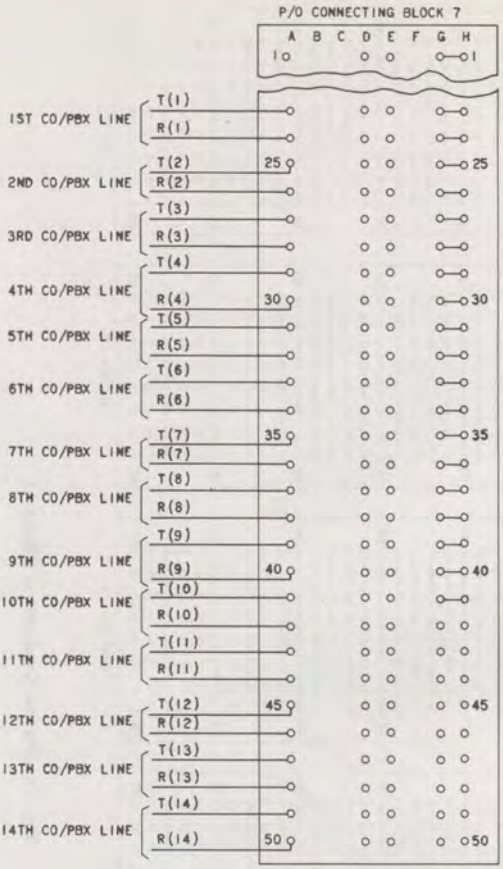


Fig. 13—Connections for Incoming CO/PBX Lines

(8) Install KTUs necessary to provide required services. See Fig. 15 for KTU connector arrangement.

Satellite Wiring Plan

3.09 When necessary the "Satellite" type wiring plan may be used. This involves running a 50-pair connector cable from the KSU to the satellite location. The six control leads (Fig. 14) dedicated to each station should be connected to the satellite location. Connecting blocks must be installed at the satellite location to accept these leads.

3.10 The primary concern of a satellite type wiring plan is that the voltage drop in the lamp loop be less than 2 volts. To ensure that the lamps receive sufficient voltage, the following guidelines should be followed.

(1) No stations should be located farther than 100 feet from a satellite location.

(2) No more than 17 stations be associated with a given satellite location.

(3) For each 100 feet of separation between satellite and KSU, use three parallel runs [lamp (L, IL) and lamp ground (ACG) leads] of 24-gauge wire between the KSU and satellite.

(4) If the lamps are still dim after following the guidelines, add more wire until the situation is corrected.

Telephone Sets

3.11 Install telephone sets at desired locations.

3.12 Install any telephone set options at this time. See Fig. 16, 17, 18 and 19 for schematics of 833A, 833C, 2833A and 2833C telephone sets, respectively.

3.13 The faceplate must be removed to install telephone set options. Options are installed as follows:

(a) ***External Ringer for Power Failure Transfer:***

(1) Connect ringer leads to telephone set as shown in Table D.

(b) ***Privacy Circuit (D-180486 Kit of Parts):***

(1) Mount privacy circuit board on the two standoffs located at the left front of the telephone set base (Fig. 20).

(2) Fasten privacy circuit board to standoffs using mounting screws furnished with the telephone set.

(3) Connect leads according to Table E.

(4) Test privacy circuit by busying out a line using another station set. Go off-hook on line under test. The station should be

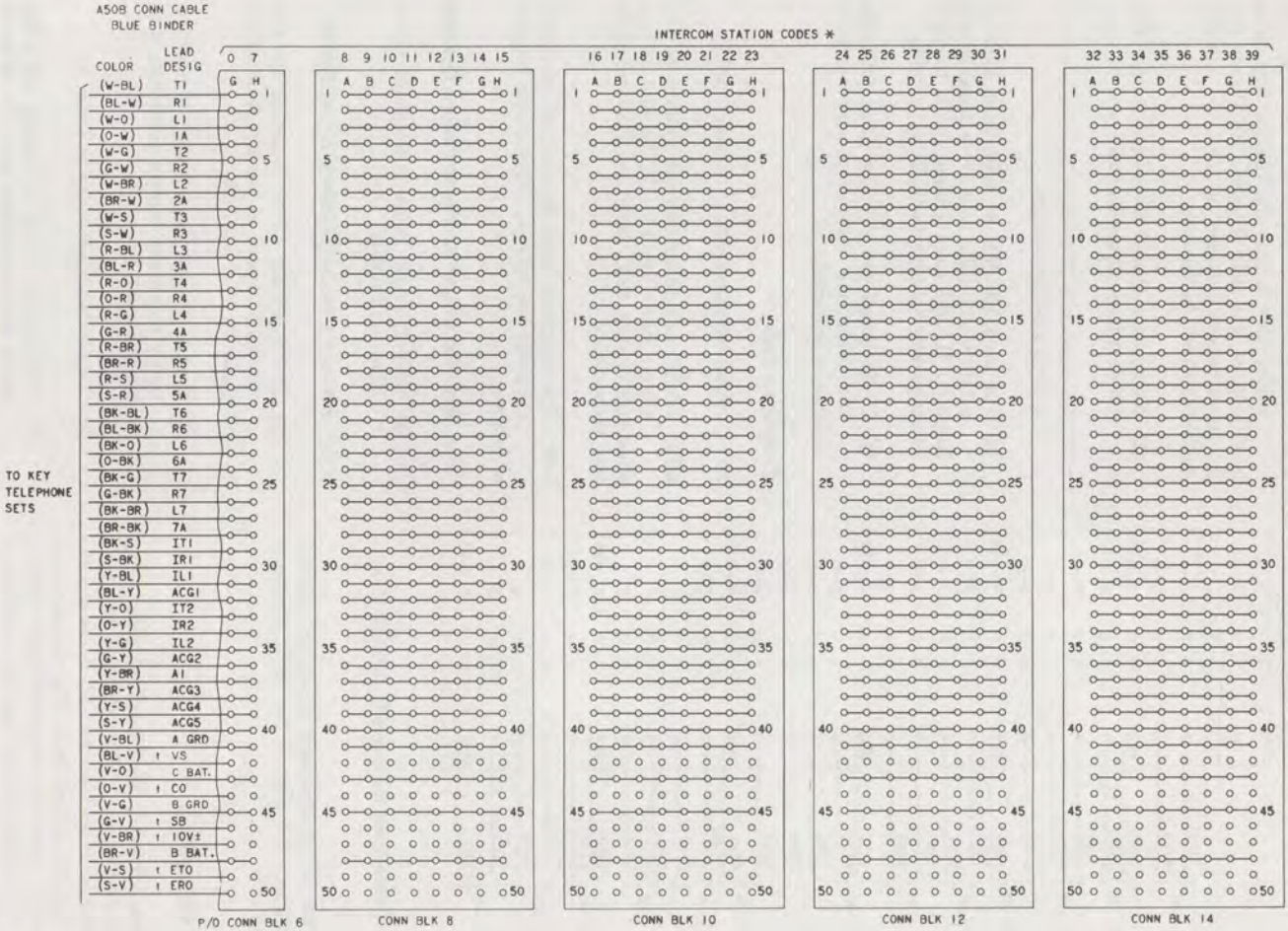
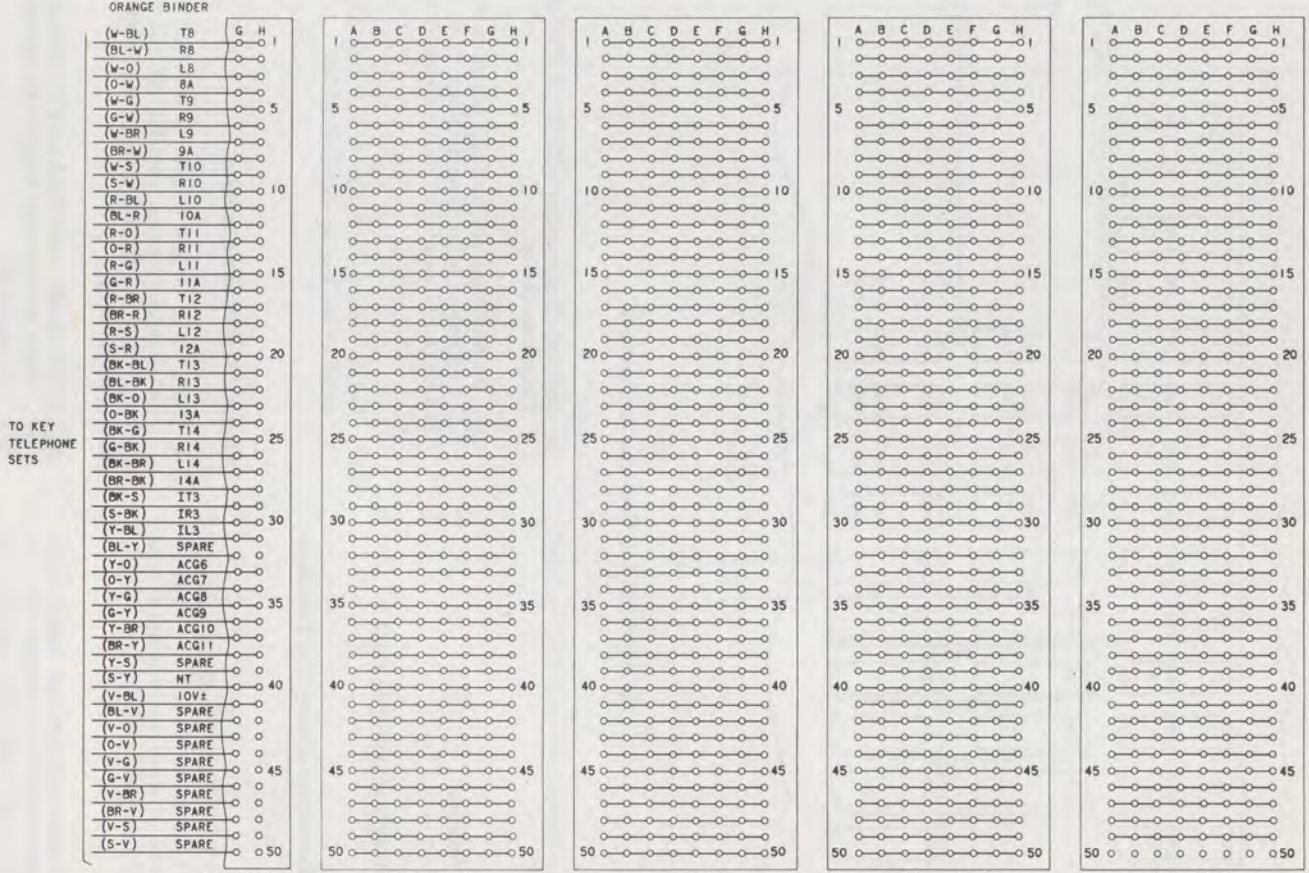


Fig. 14—Station Connections (Sheet 1)



* STATION CODE 0 IS DEDICATED TO THE ATTENDANT STATION.

† THESE SIX LEADS MUST BE RUN SEPARATELY FOR EACH STATION (7-34) WHEN A SATELLITE WIRING ARRANGEMENT IS USED.

Fig. 14—Station Connections (Sheet 2)

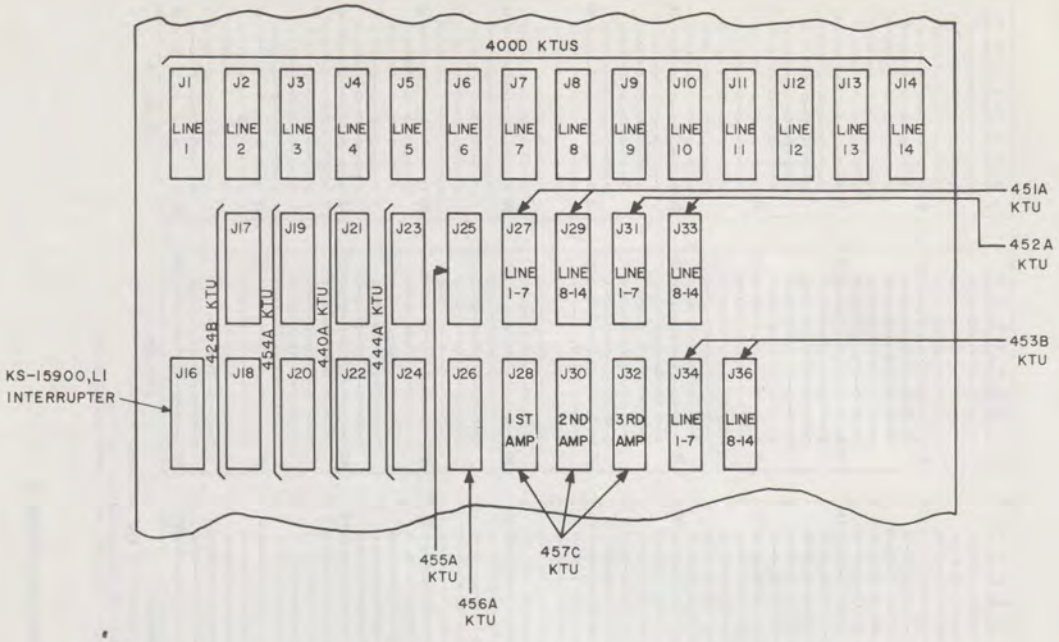


Fig. 15—580A KTU Connector Arrangement

locked out. Repeat for each line equipped with privacy.

(c) ***Privacy Release:***

(1) Connect leads according to Table F.

(d) ***Station Restriction (Rotary Dial Telephone Set):***

(1) Install KS-15724, L1 diode between network terminals RR and F. Terminate negative lead of diode on terminal F with positive lead on terminal RR.

(2) On telephone set terminal board, move two ***green*** leads from terminal 22 to 4 and move two ***red*** leads from terminal 4 to 22.

(e) ***Station Restriction (TOUCH-TONE Telephone Sets):***

(1) On telephone set terminal board, move two ***green*** leads from terminal 22 to 4 and move two ***red*** leads from terminal 4 to 22.

3.14 Install designation strips in key caps and install amber key cap on recall button.

7A1 and 7B1 Selector Consoles

3.15 Install DSS or MW console (if required) at the attendant station. See Fig. 21 and 22 for schematics of 7A1 and 7B1 station busy selector consoles, respectively.

D0 to D1 and CG0 to CG1 straps must be removed when 7A1 console is installed.

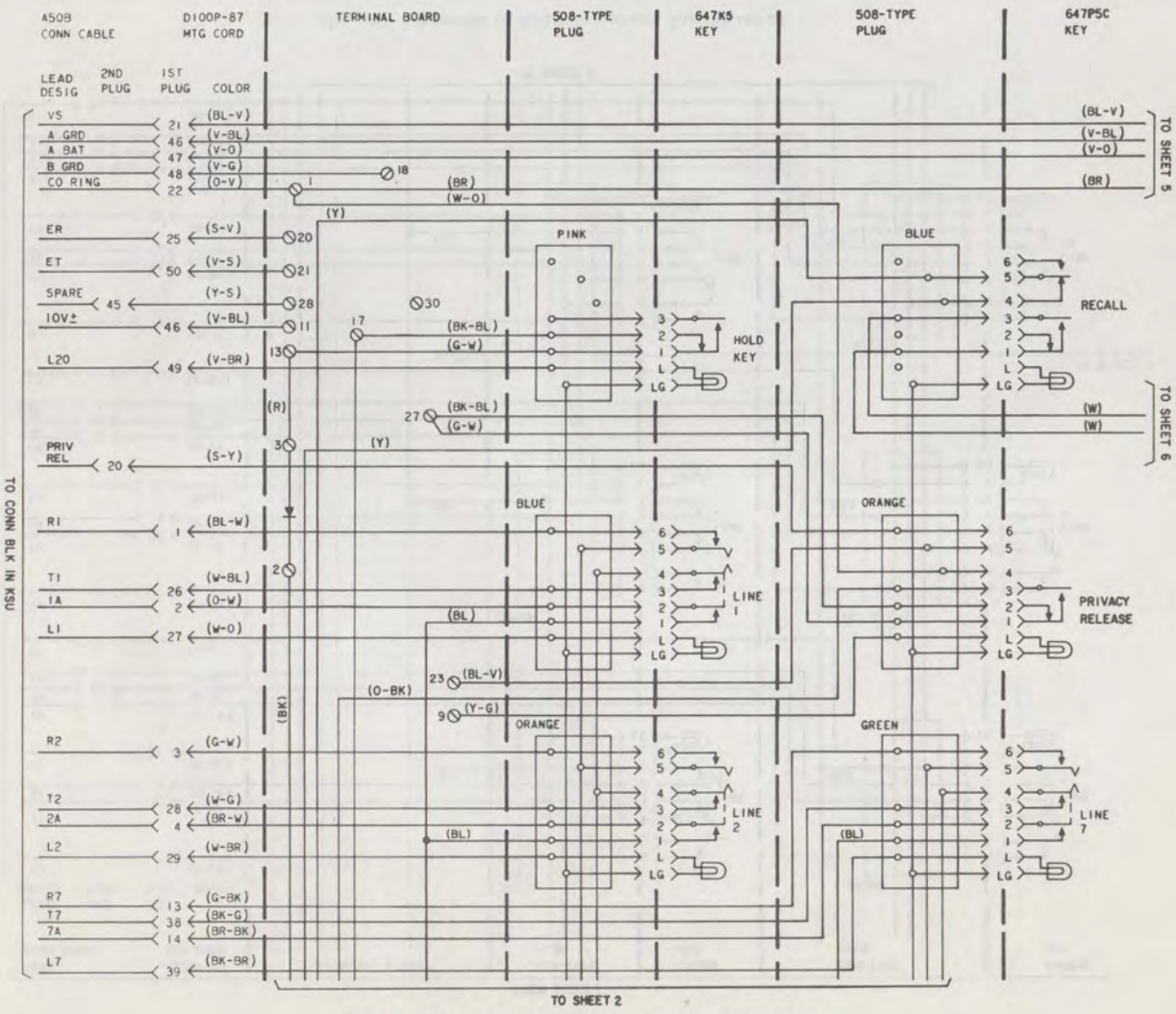


Fig. 16—Schematic of 833A Telephone Set (Sheet 1)

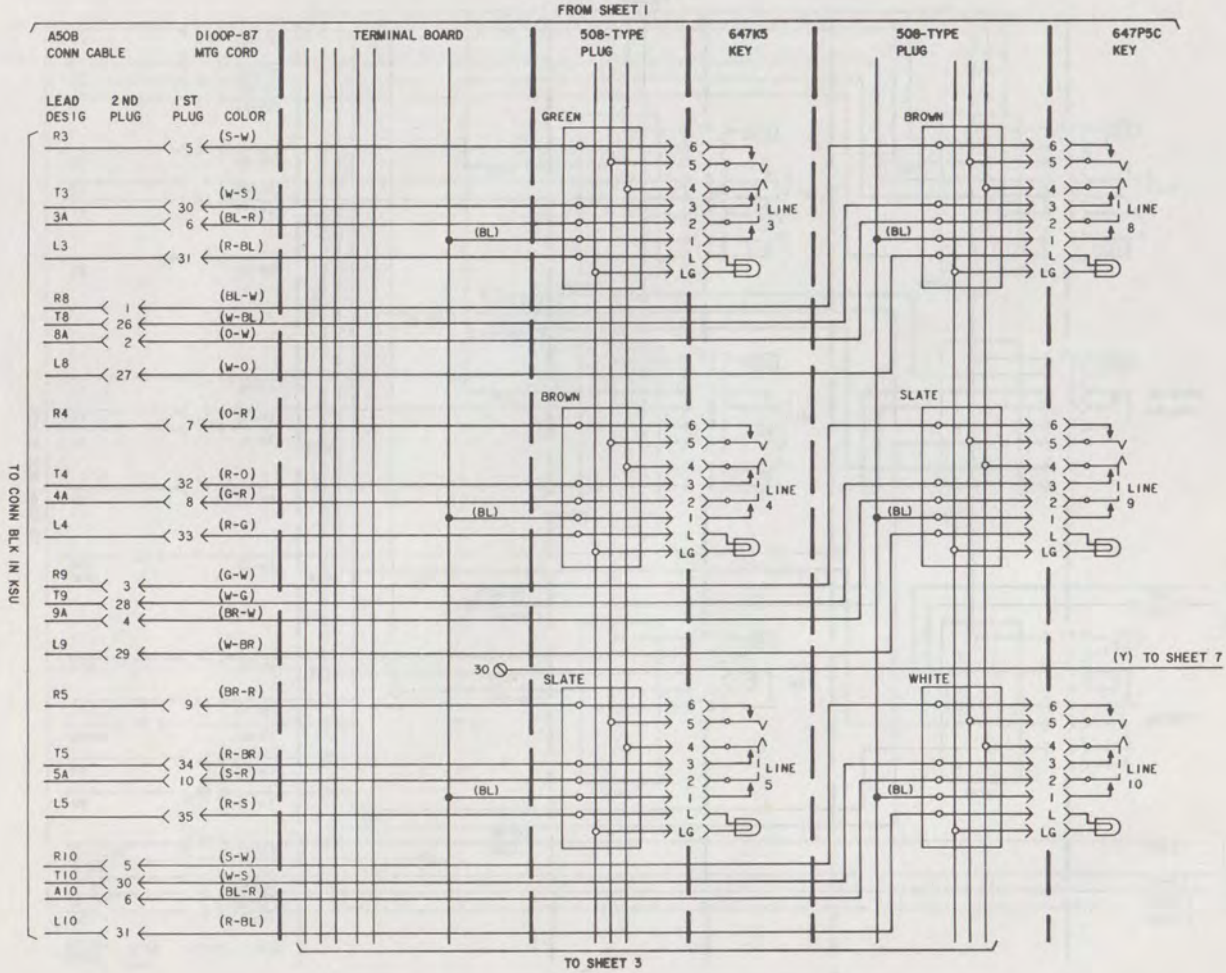


Fig. 16—Schematic of 833A Telephone Set (Sheet 2)

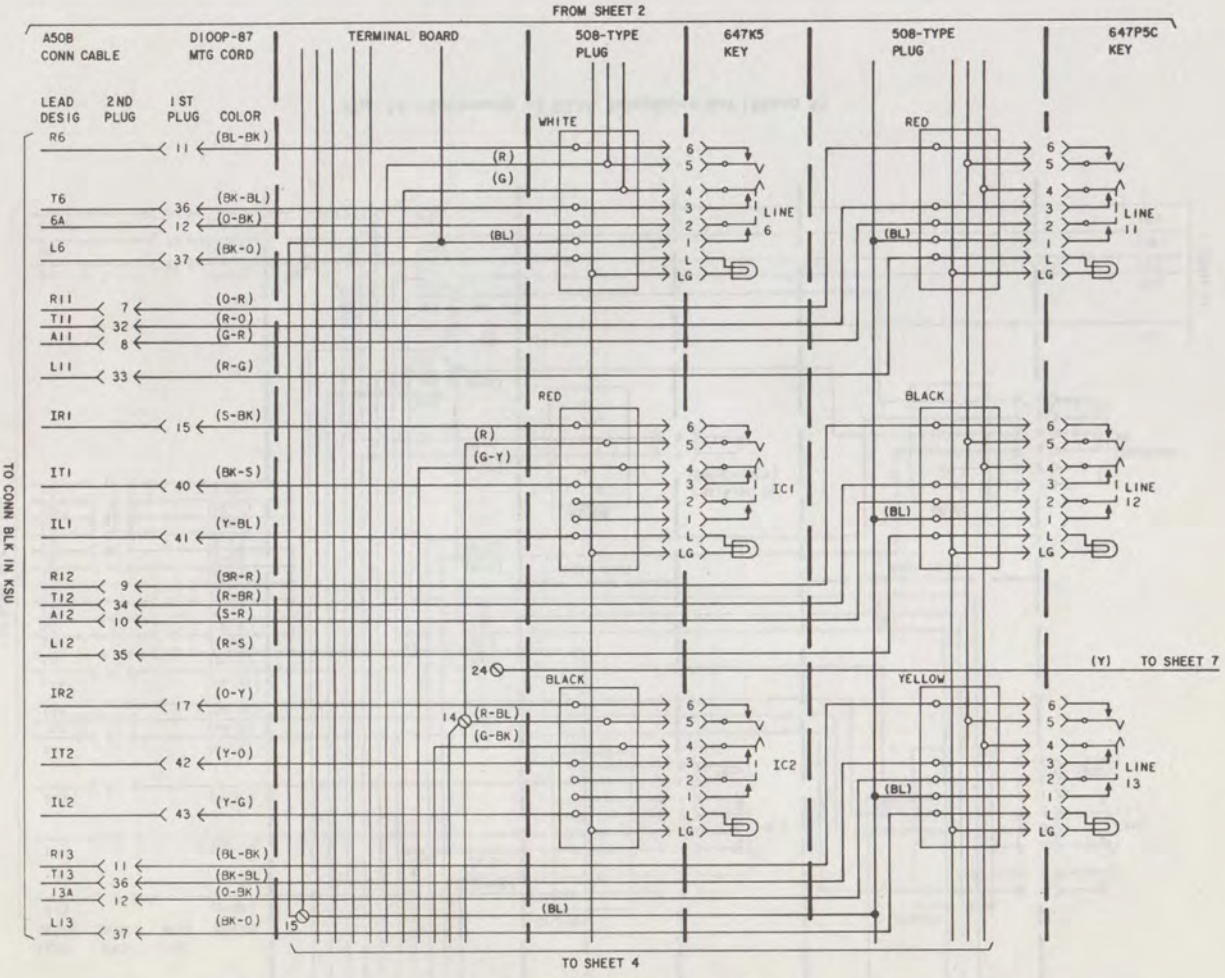


Fig. 16—Schematic of 833A Telephone Set (Sheet 3)

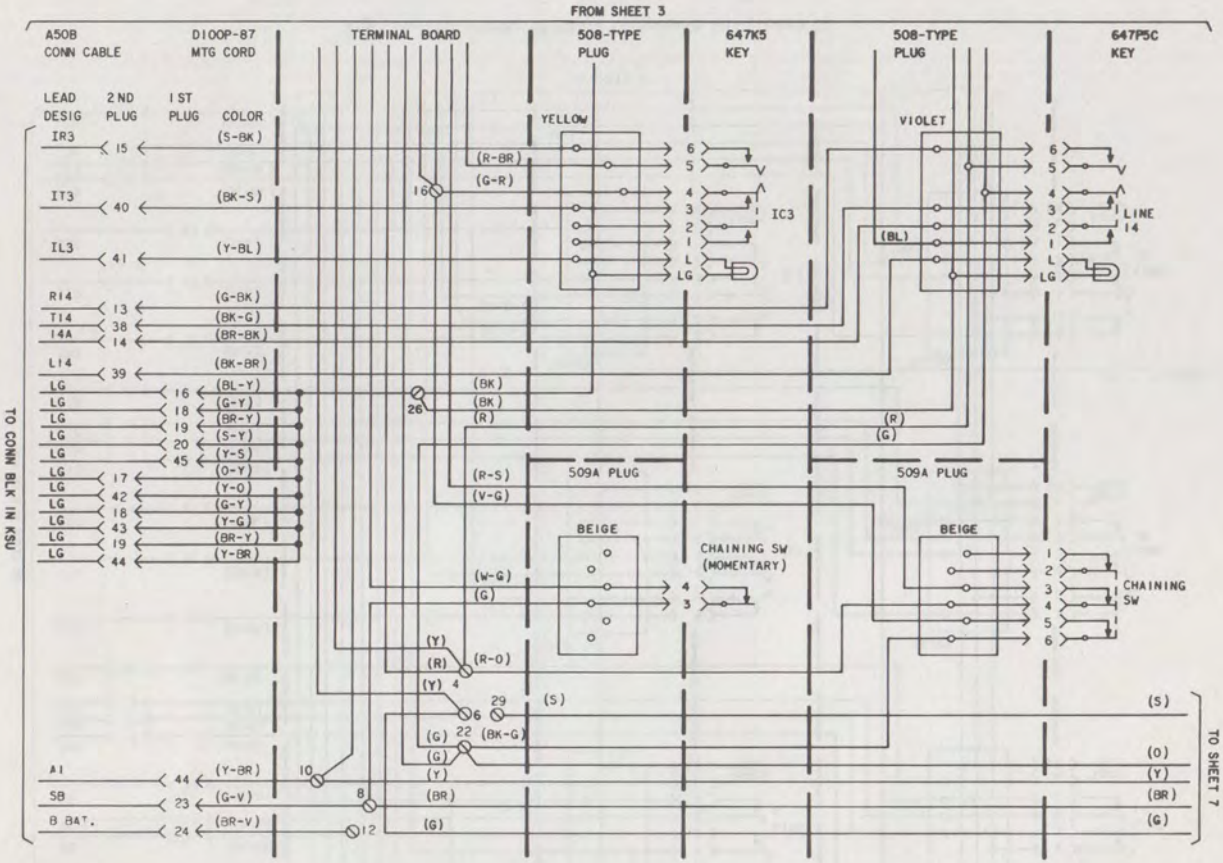


Fig. 16—Schematic of 833A Telephone Set (Sheet 4)

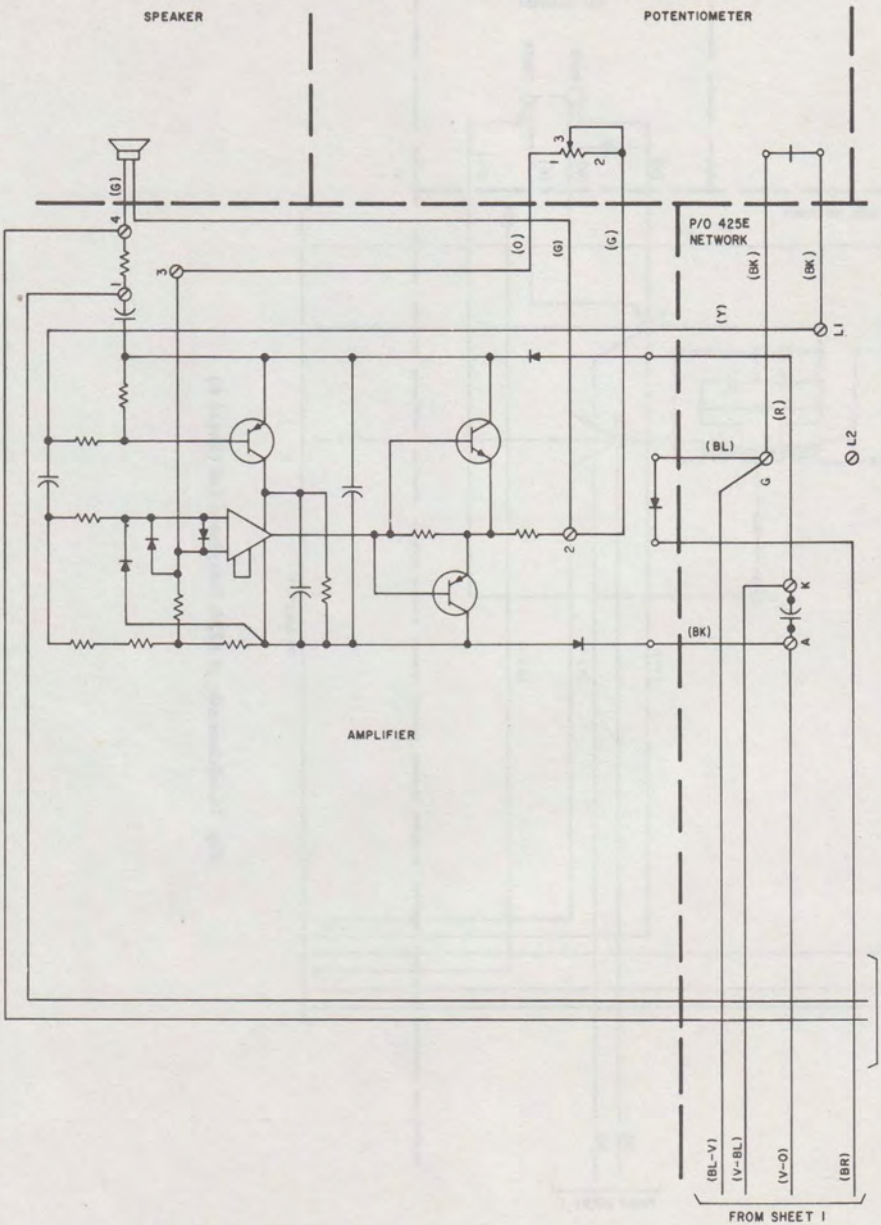


Fig. 16—Schematic of 833A Telephone Set (Sheet 5)

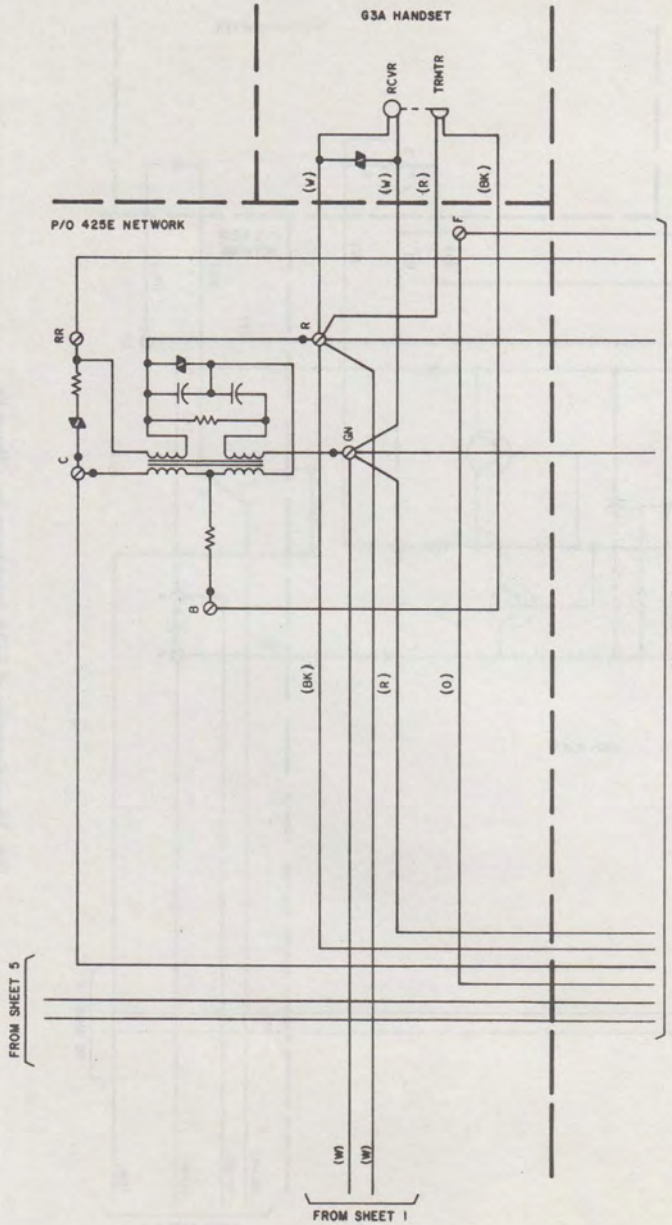


Fig. 16—Schematic of 833A Telephone Set (Sheet 6)

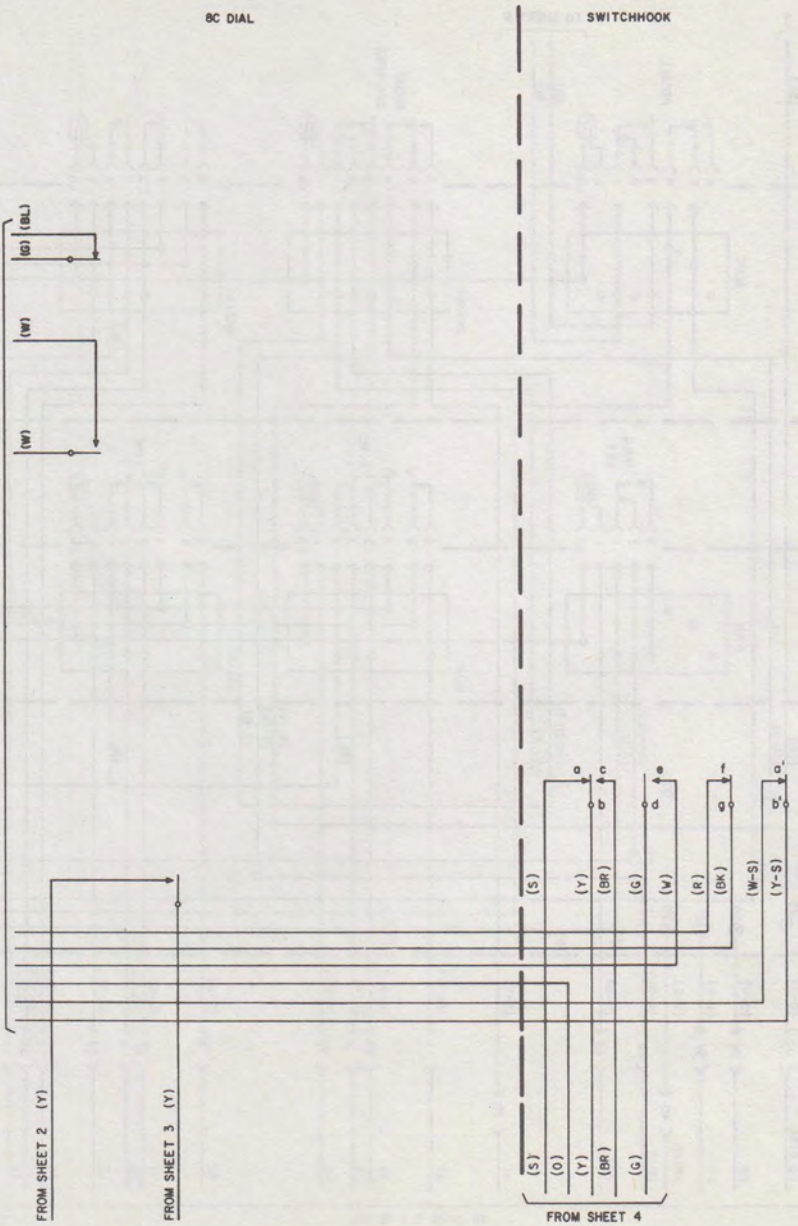


Fig. 16—Schematic of 833A Telephone Set (Sheet 7)

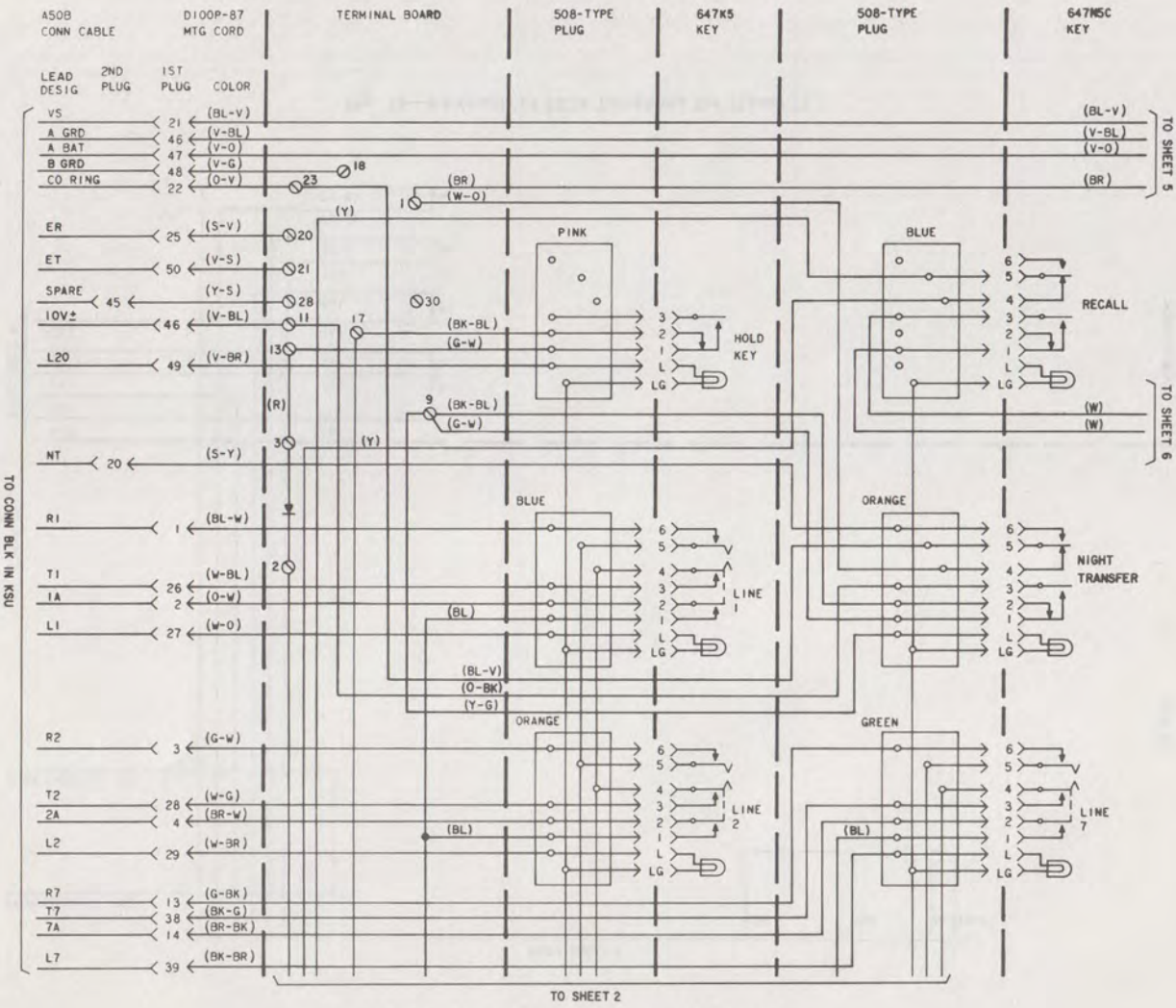


Fig. 17—Schematic of 833C Telephone Set (Sheet 1)

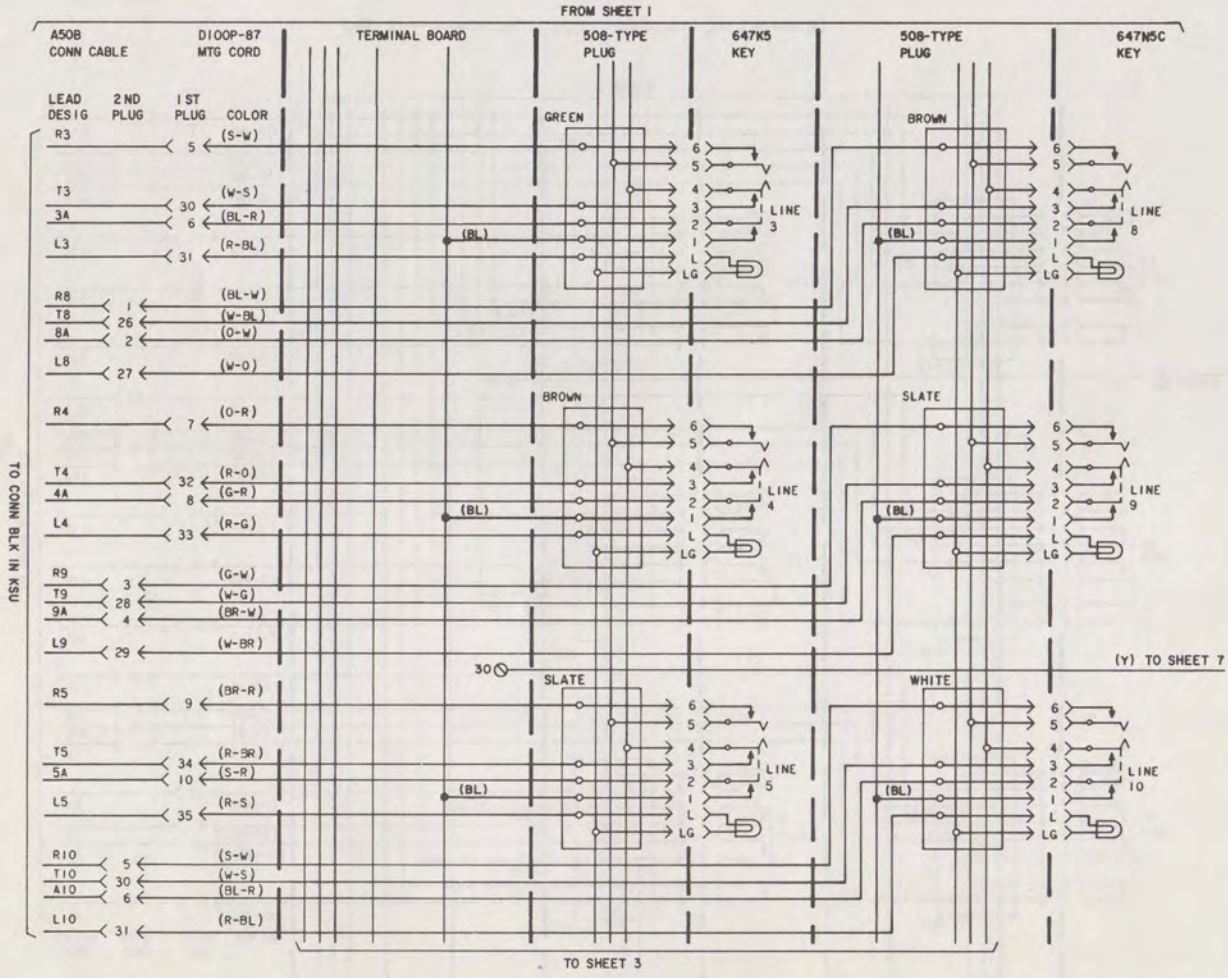


Fig. 17—Schematic of 833C Telephone Set (Sheet 2)

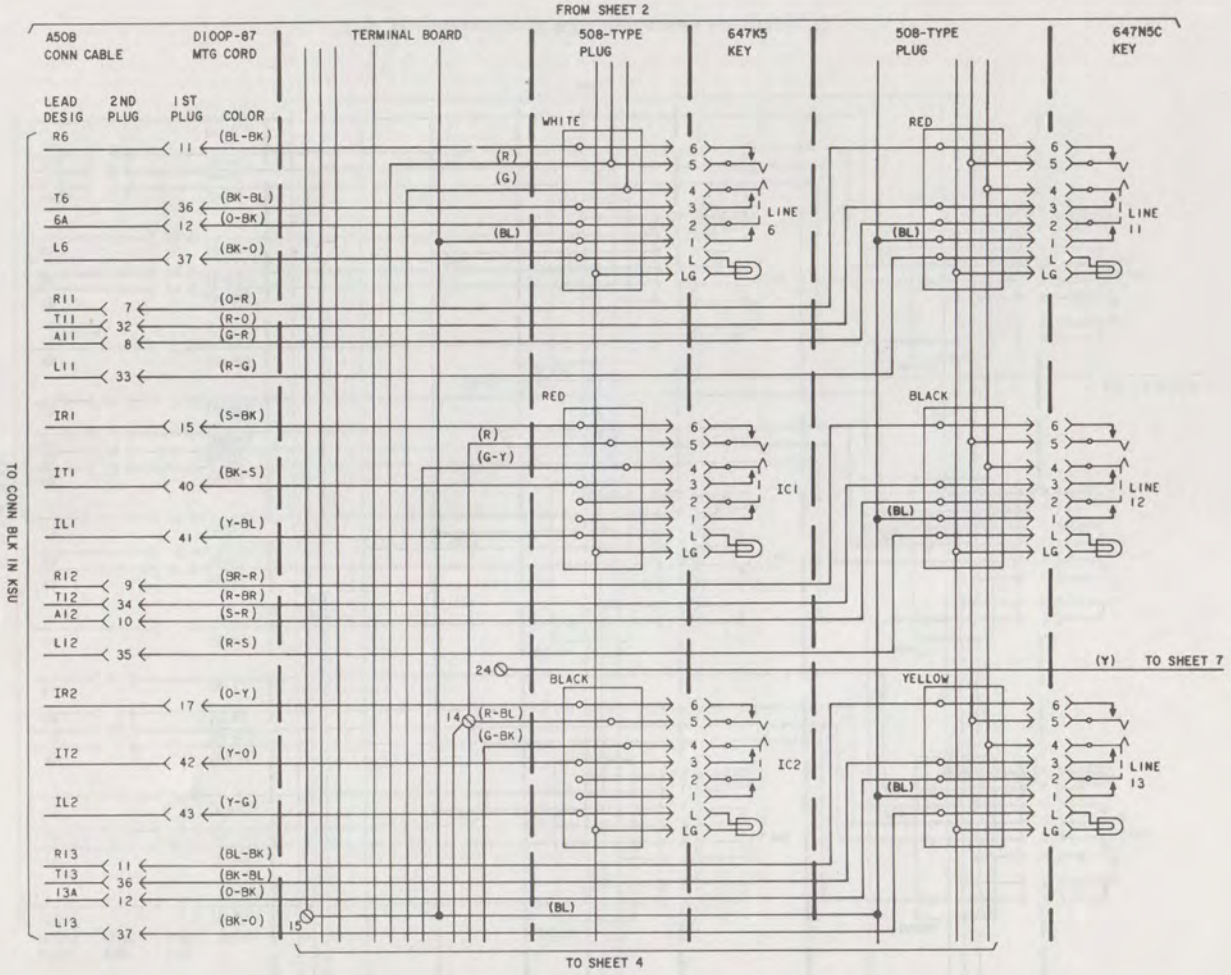


Fig. 17—Schematic of 833C Telephone Set (Sheet 3)

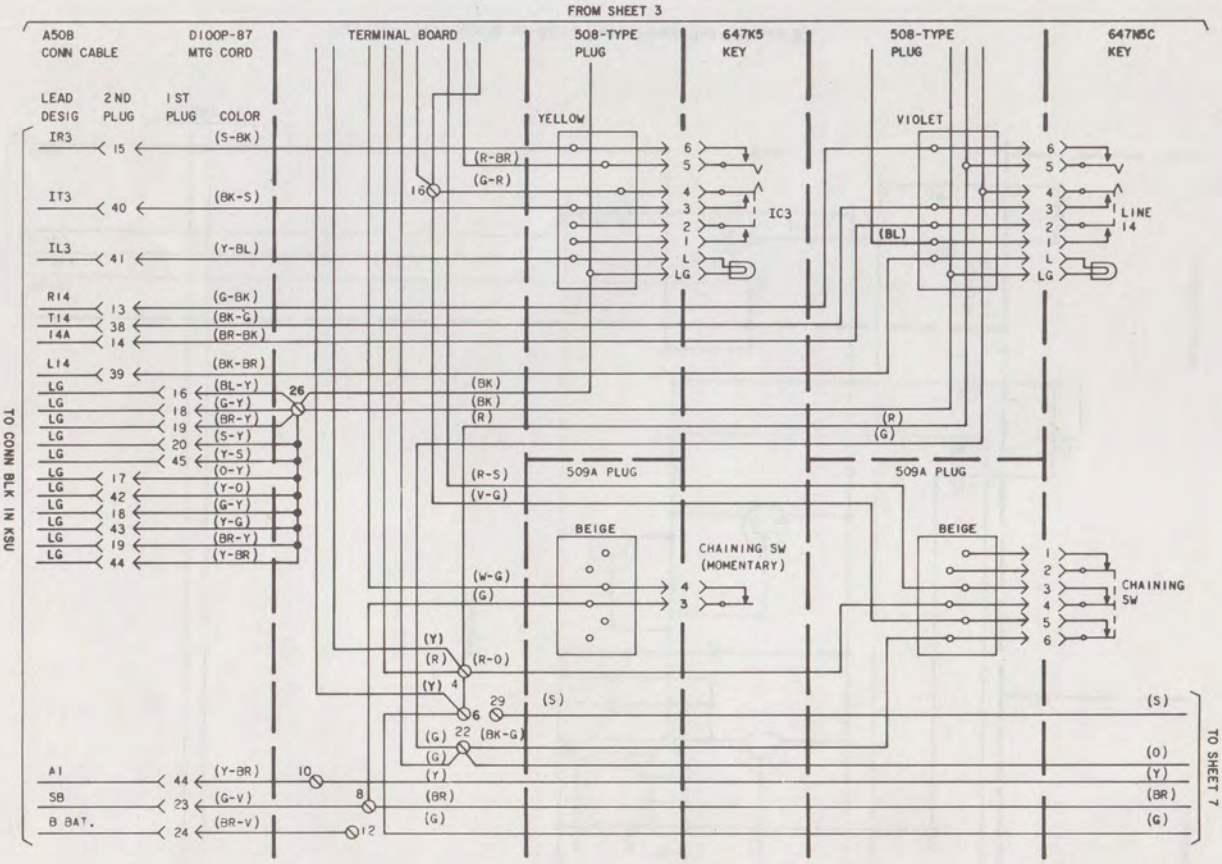


Fig. 17—Schematic of 833C Telephone Set (Sheet 4)

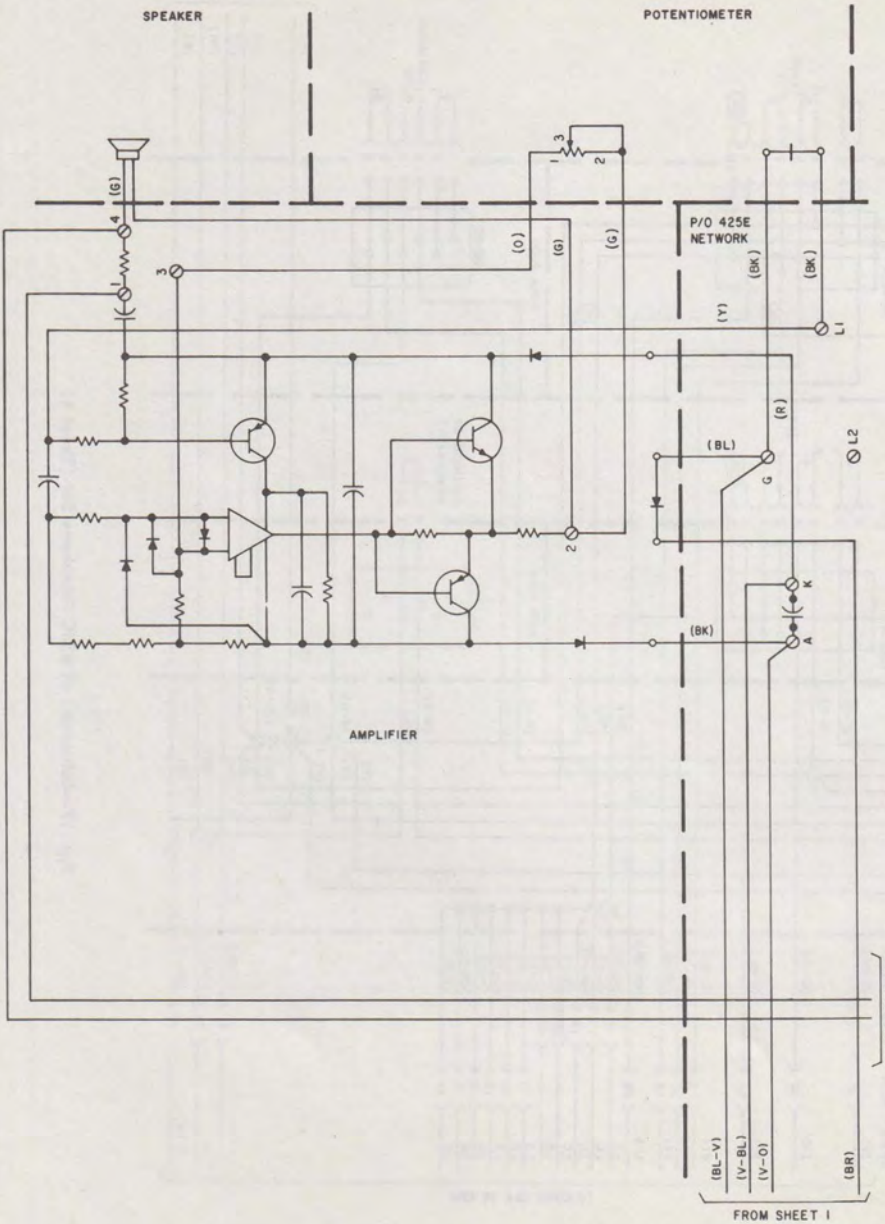


Fig. 17—Schematic of 833C Telephone Set (Sheet 5)

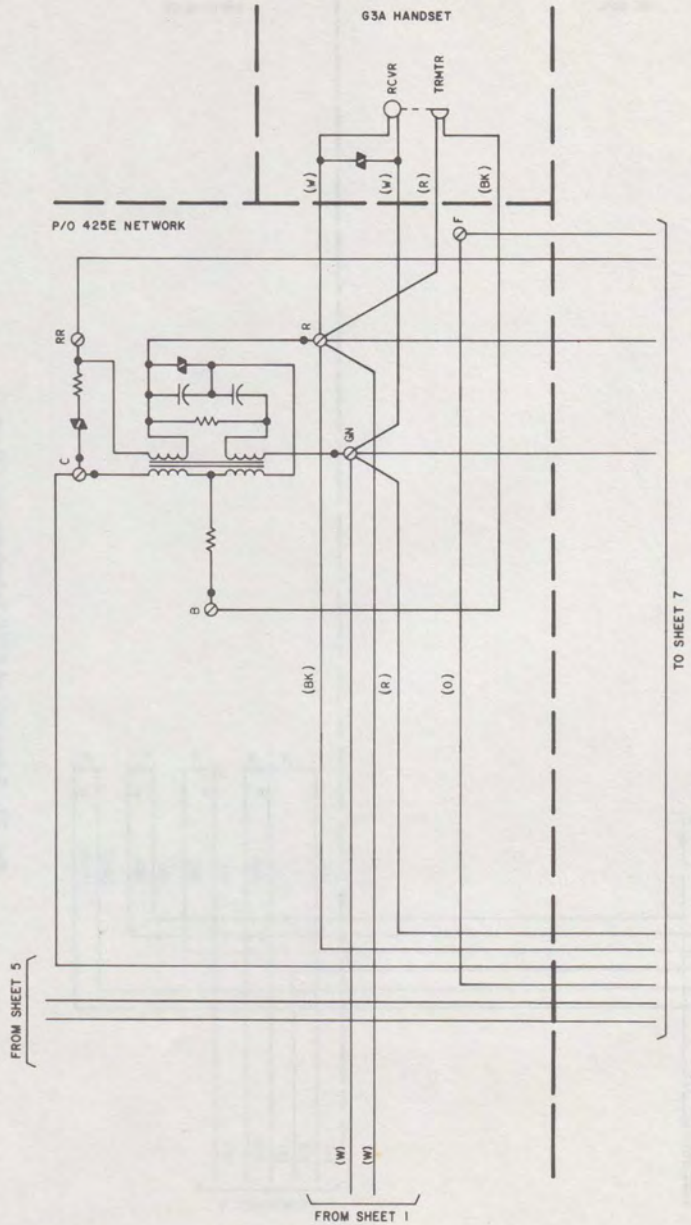


Fig. 17—Schematic of 833C Telephone Set (Sheet 6)

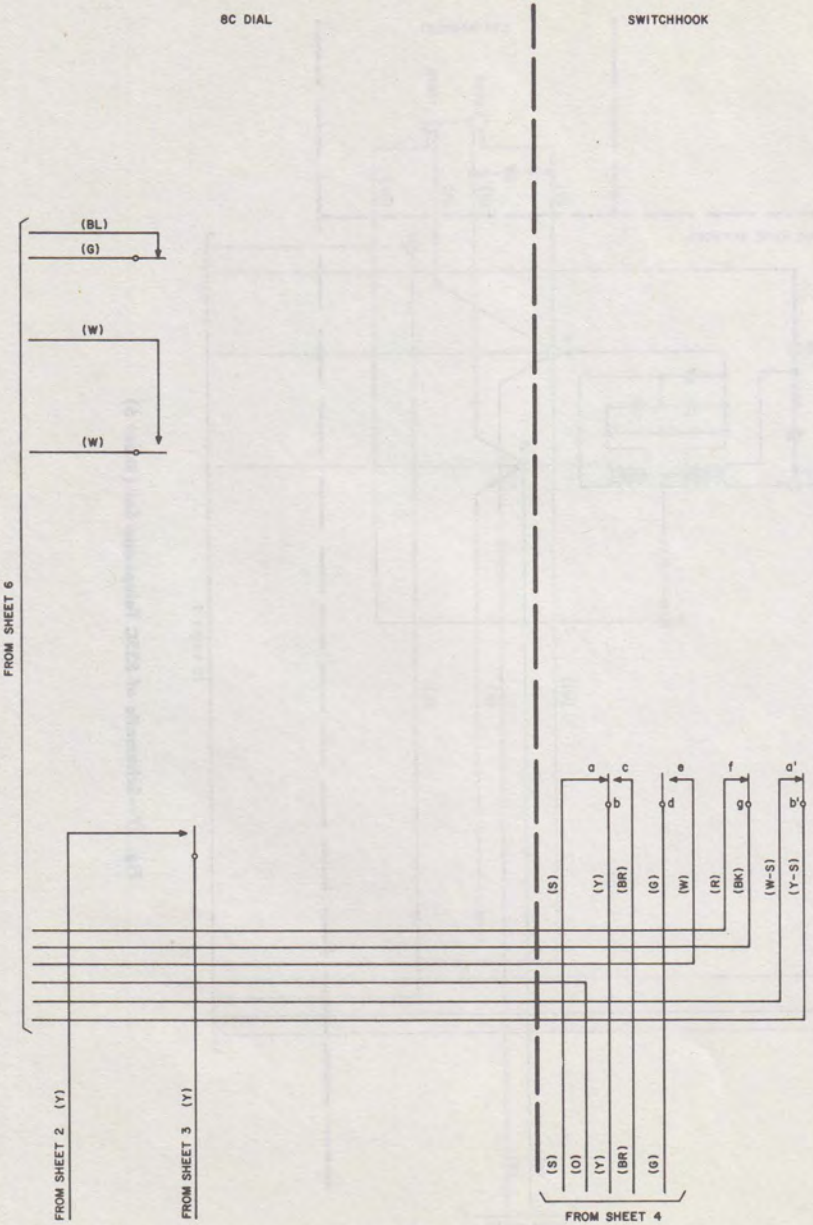


Fig. 17—Schematic of 833C Telephone Set (Sheet 7)

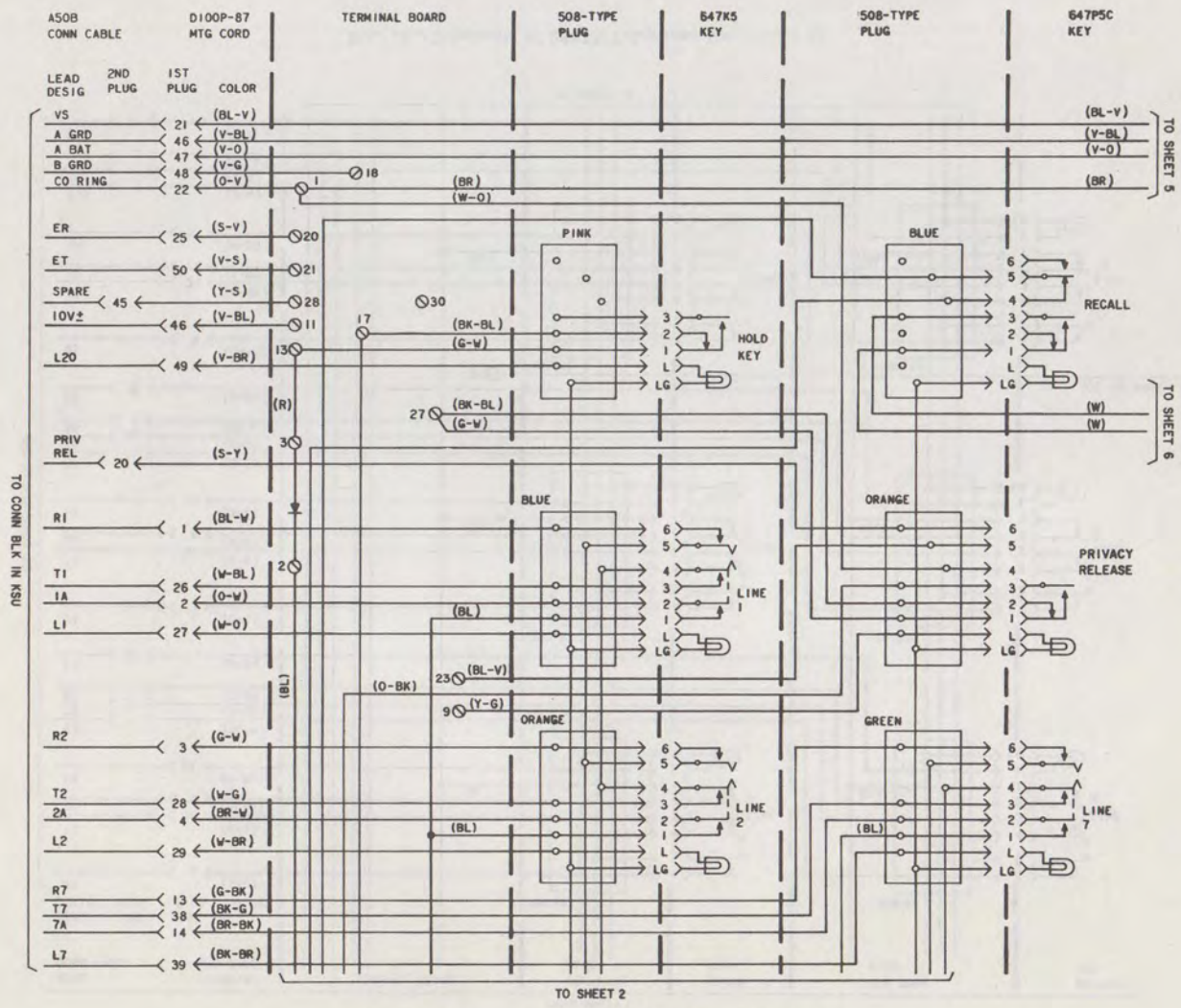


Fig. 18—Schematic of 2833A Telephone Set (Sheet 1)

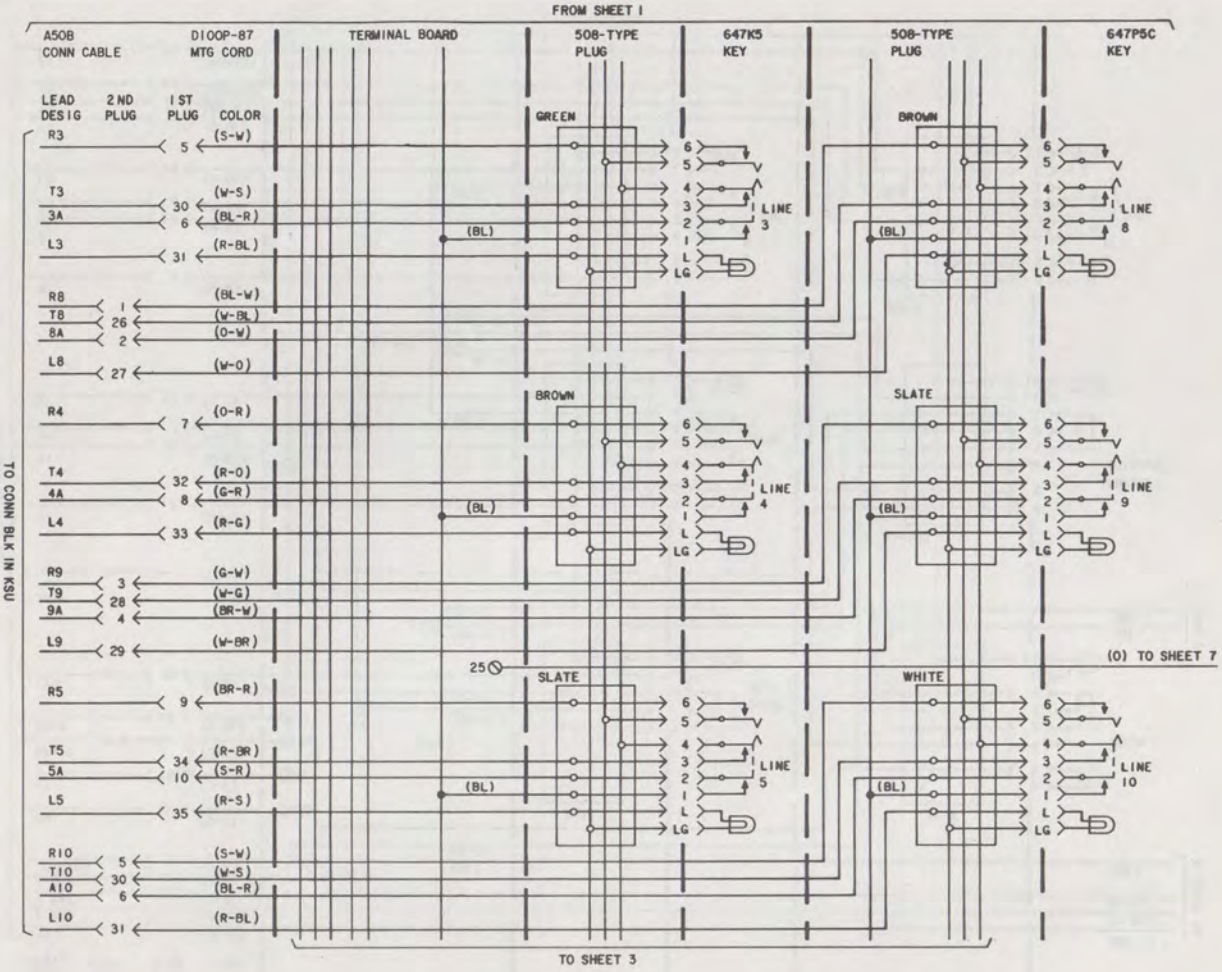


Fig. 18—Schematic of 2833A Telephone Set (Sheet 2)

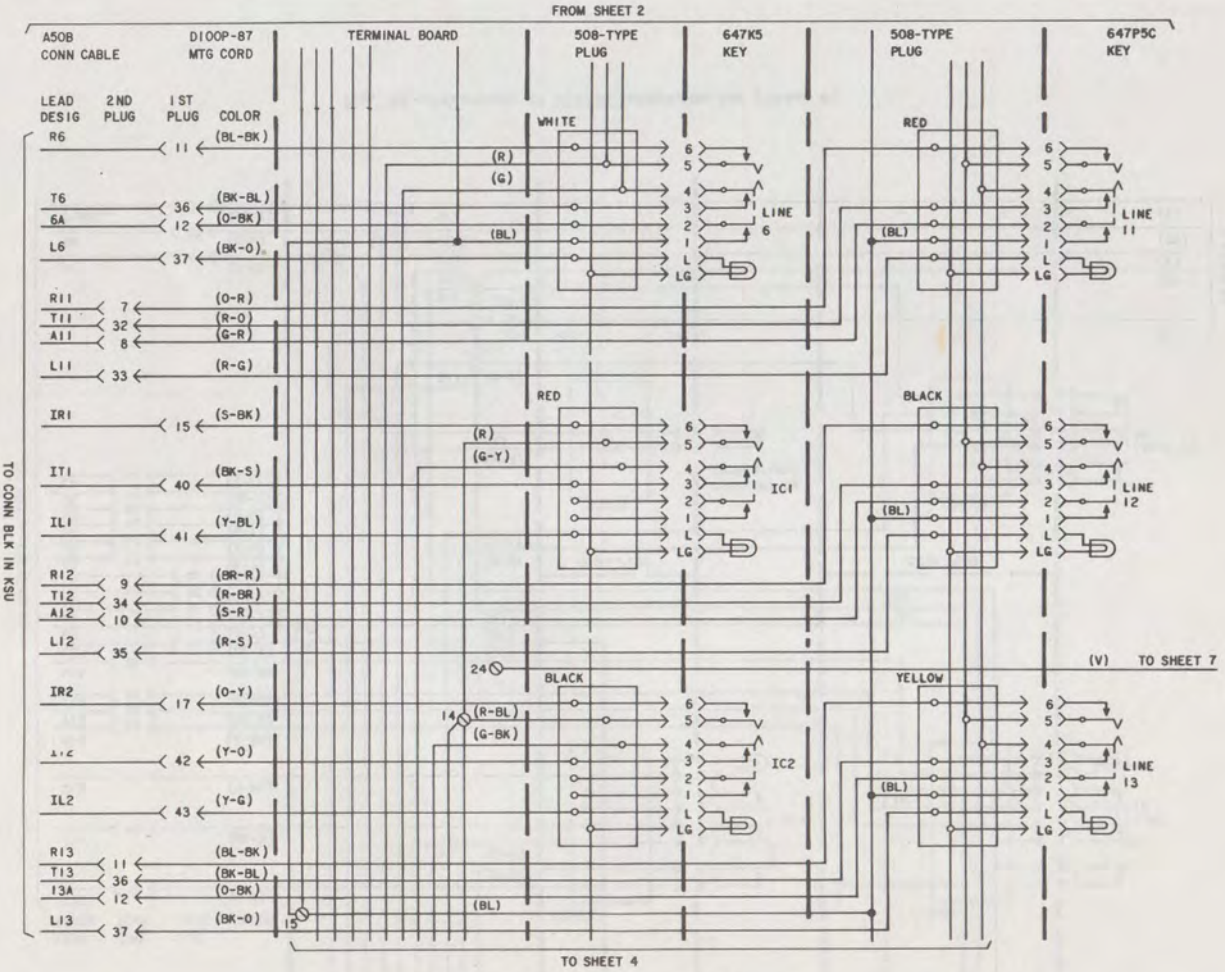


Fig. 18—Schematic of 2833A Telephone Set (Sheet 3)

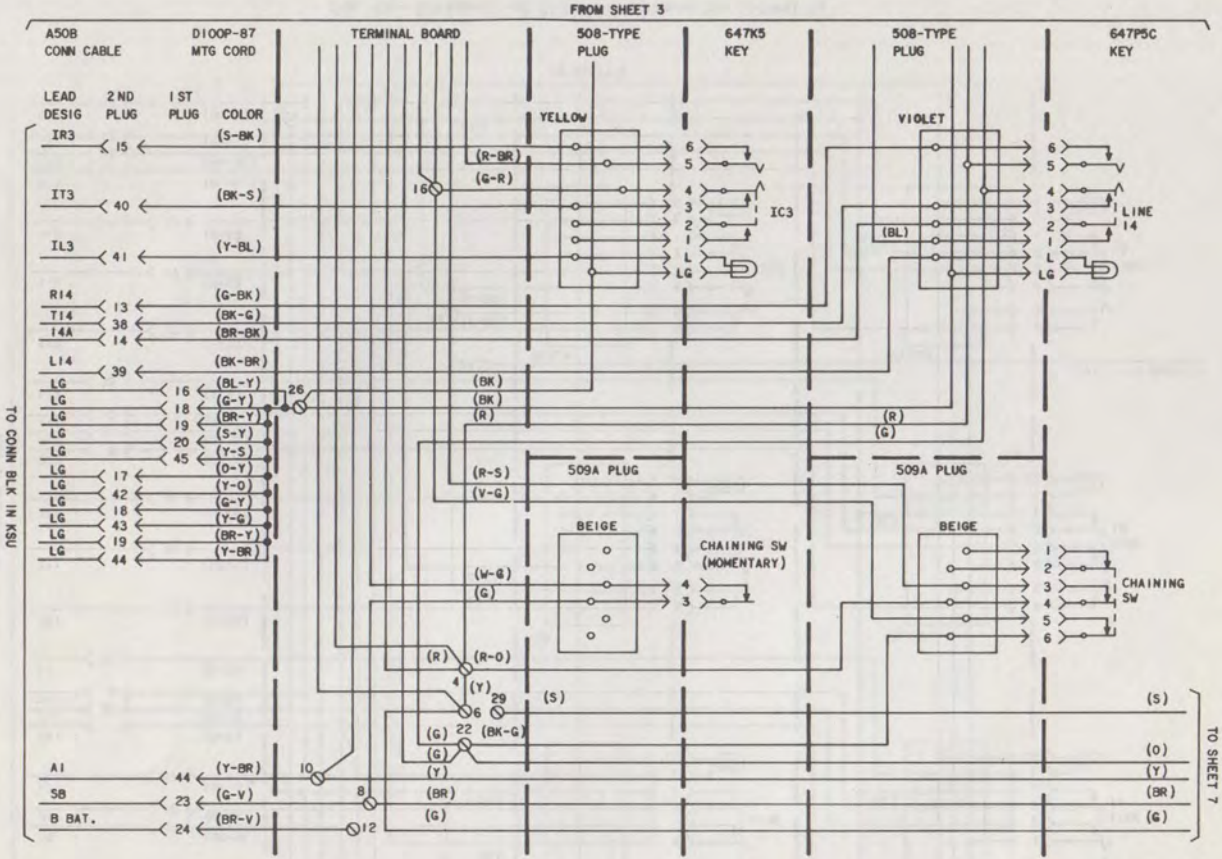


Fig. 18—Schematic of 2833A Telephone Set (Sheet 4)

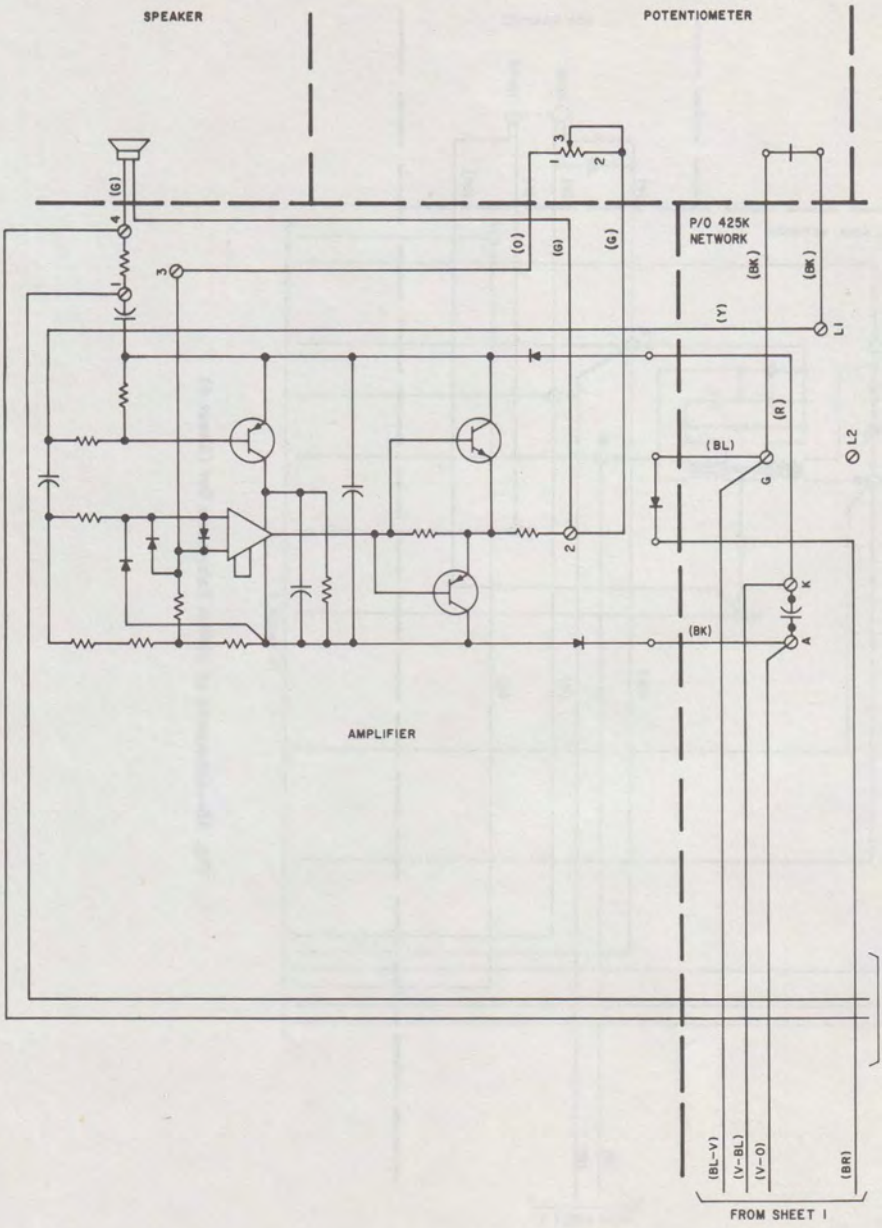


Fig. 18—Schematic of 2833A Telephone Set (Sheet 5)

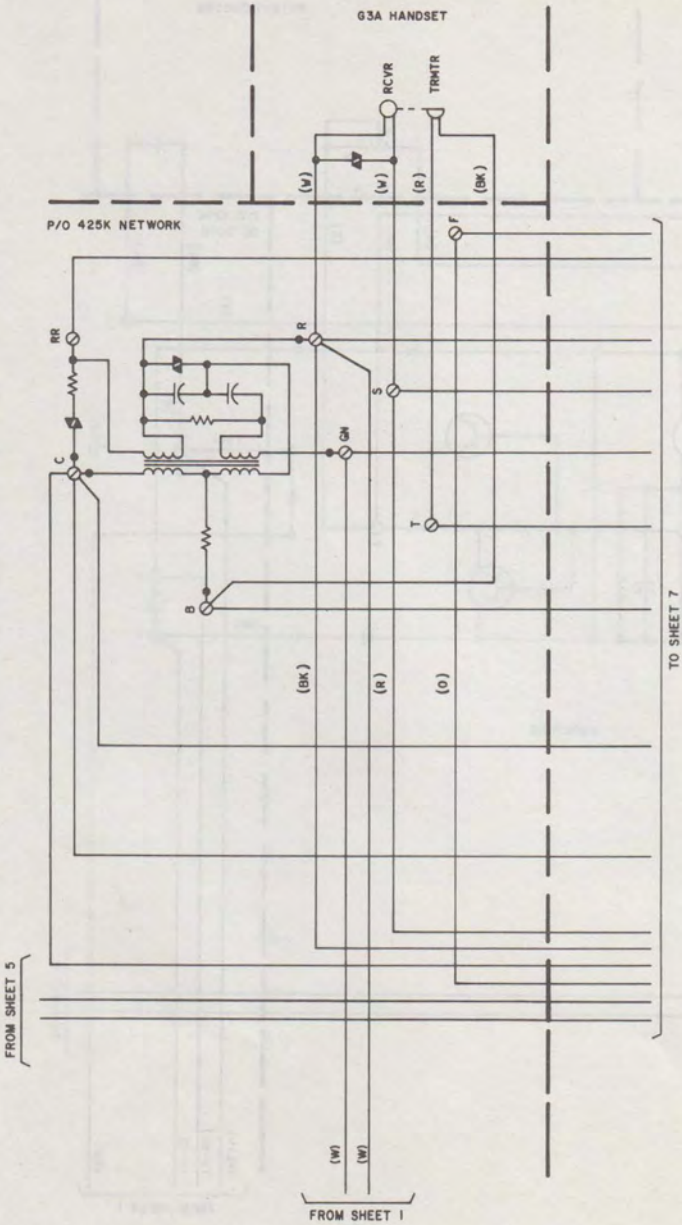


Fig. 18—Schematic of 2833A Telephone Set (Sheet 6)

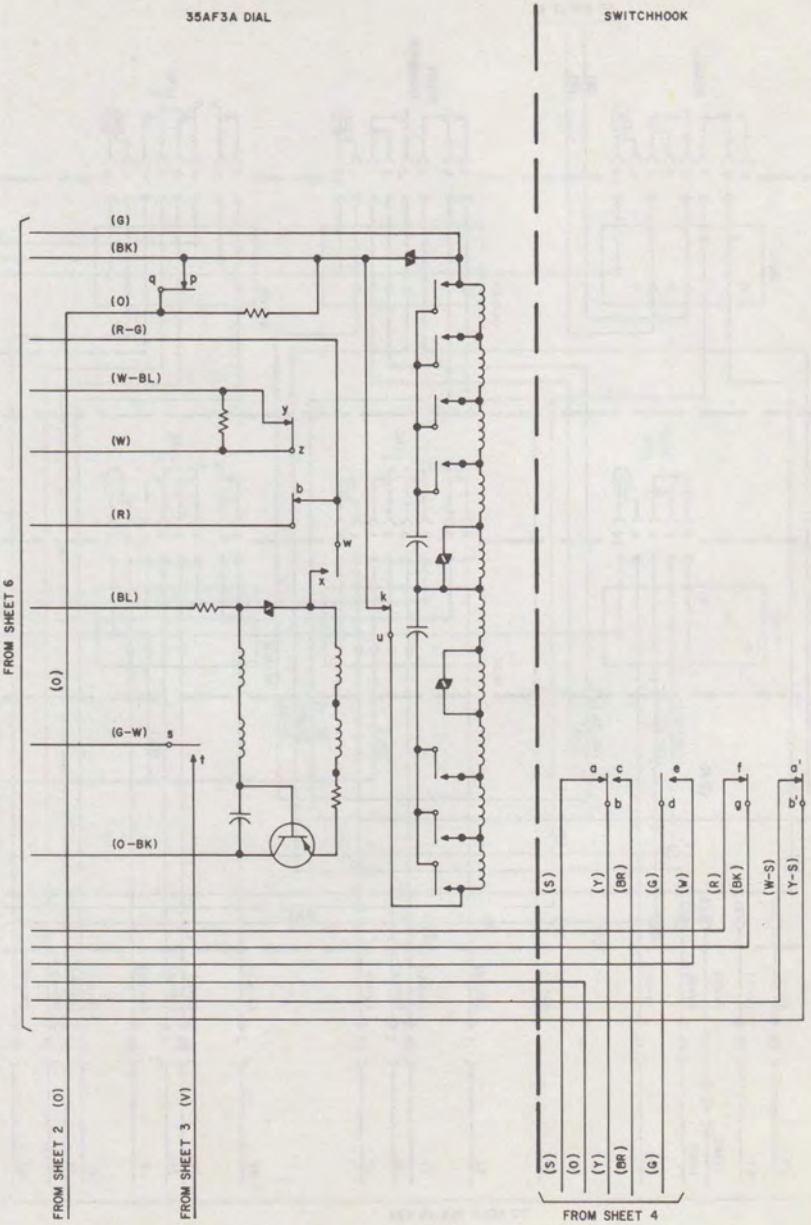


Fig. 18—Schematic of 2833A Telephone Set (Sheet 7)

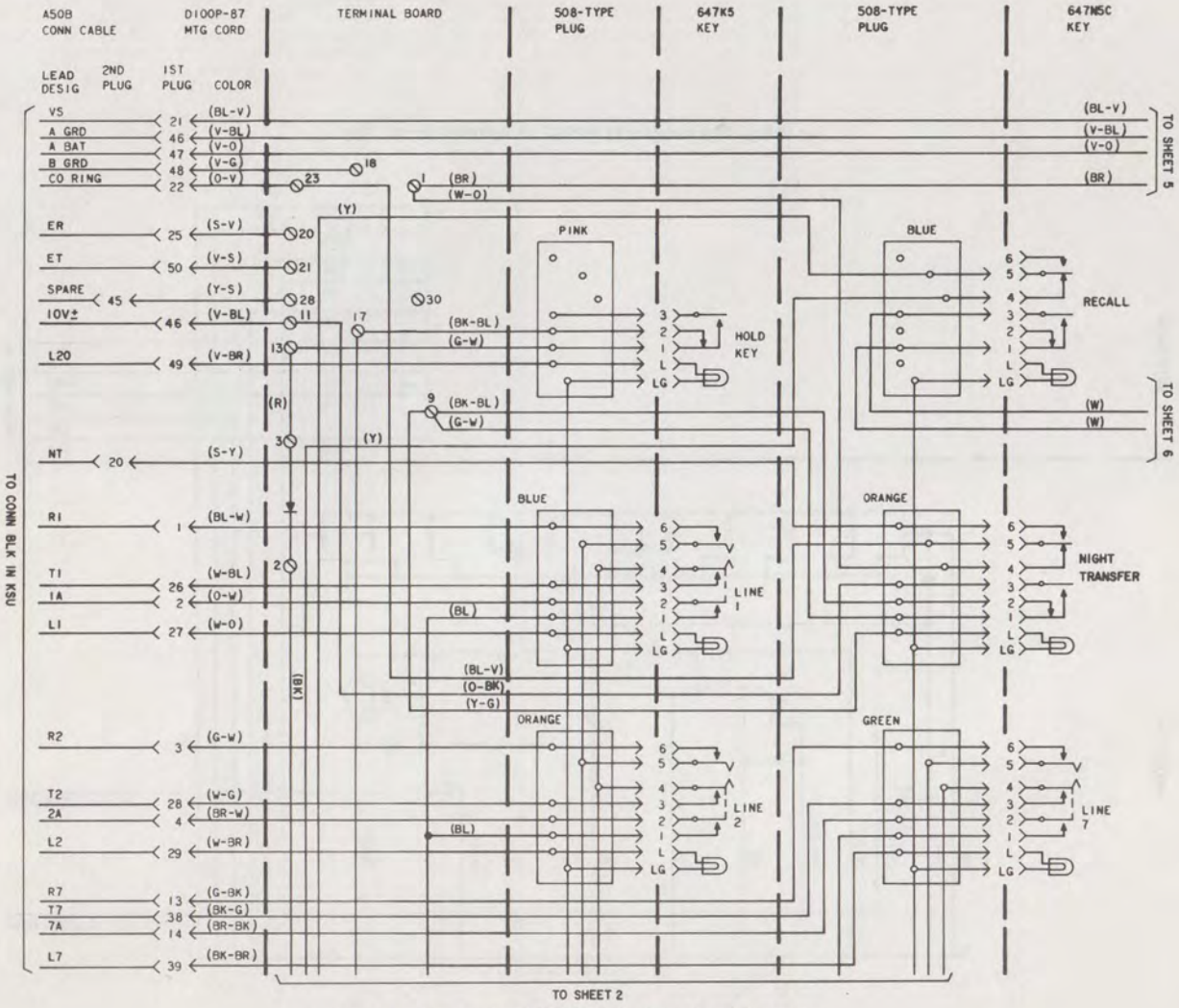


Fig. 19—Schematic of 2833C Telephone Set (Sheet 1)

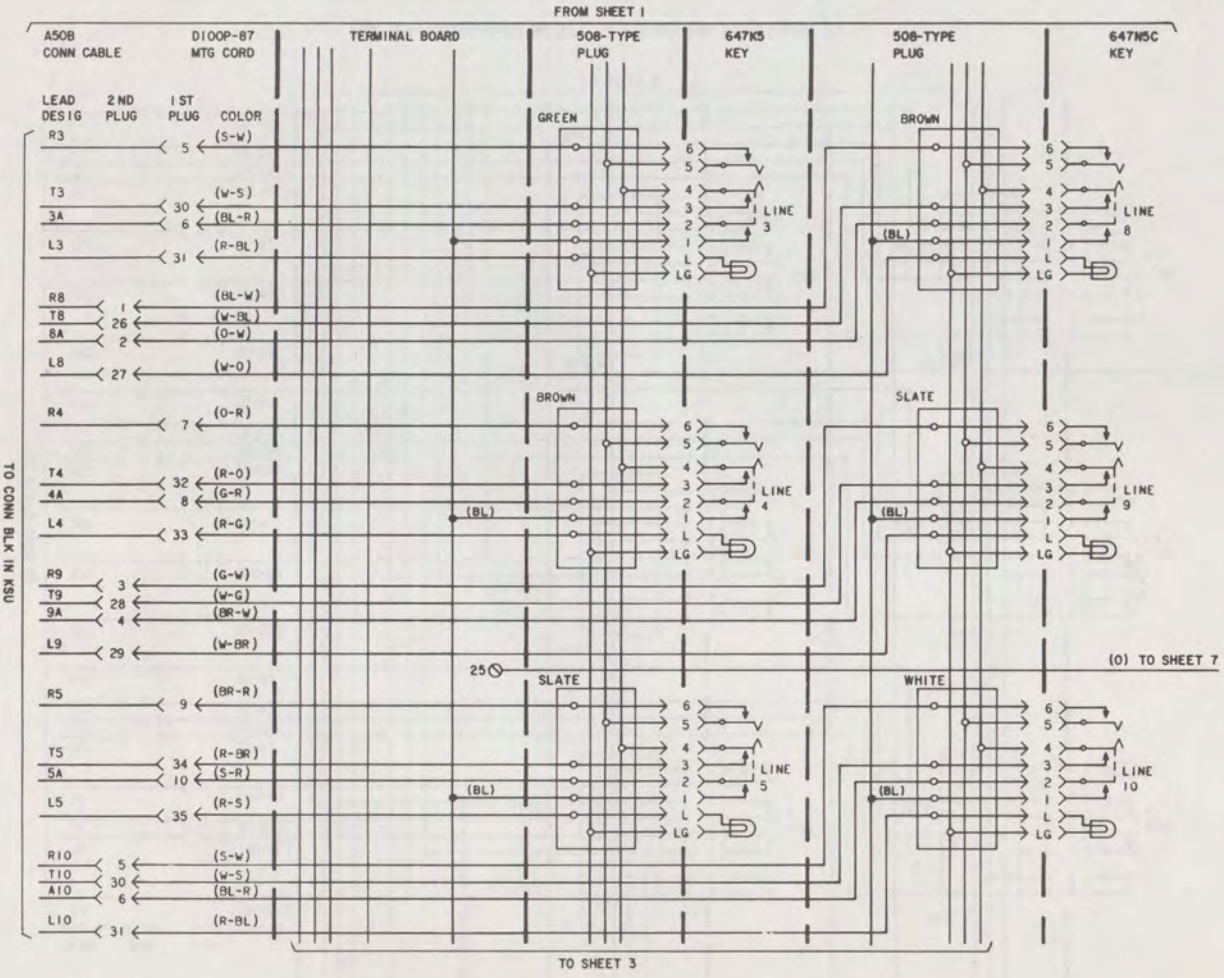


Fig. 19—Schematic of 2833C Telephone Set (Sheet 2)

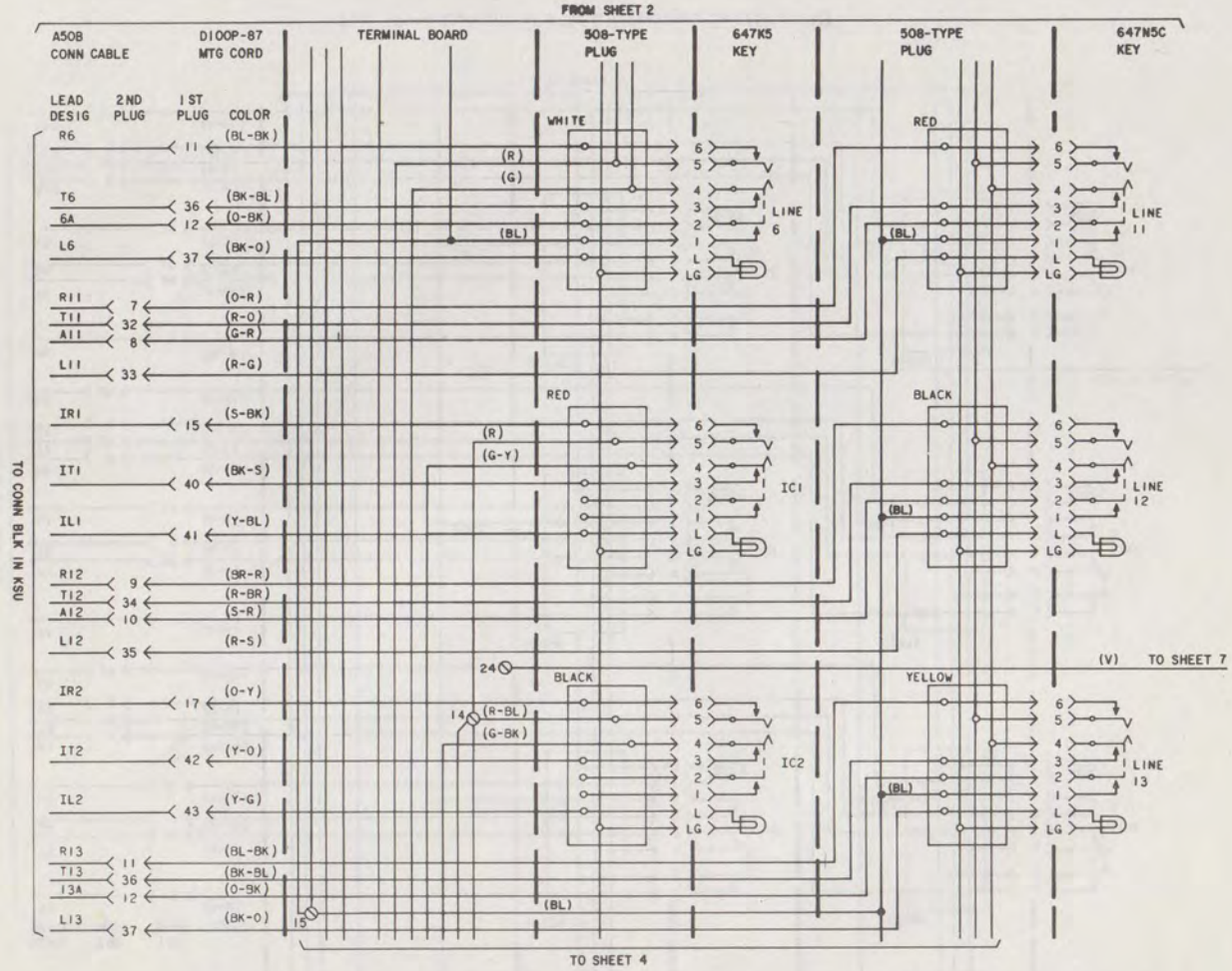


Fig. 19—Schematic of 2833C Telephone Set (Sheet 3)

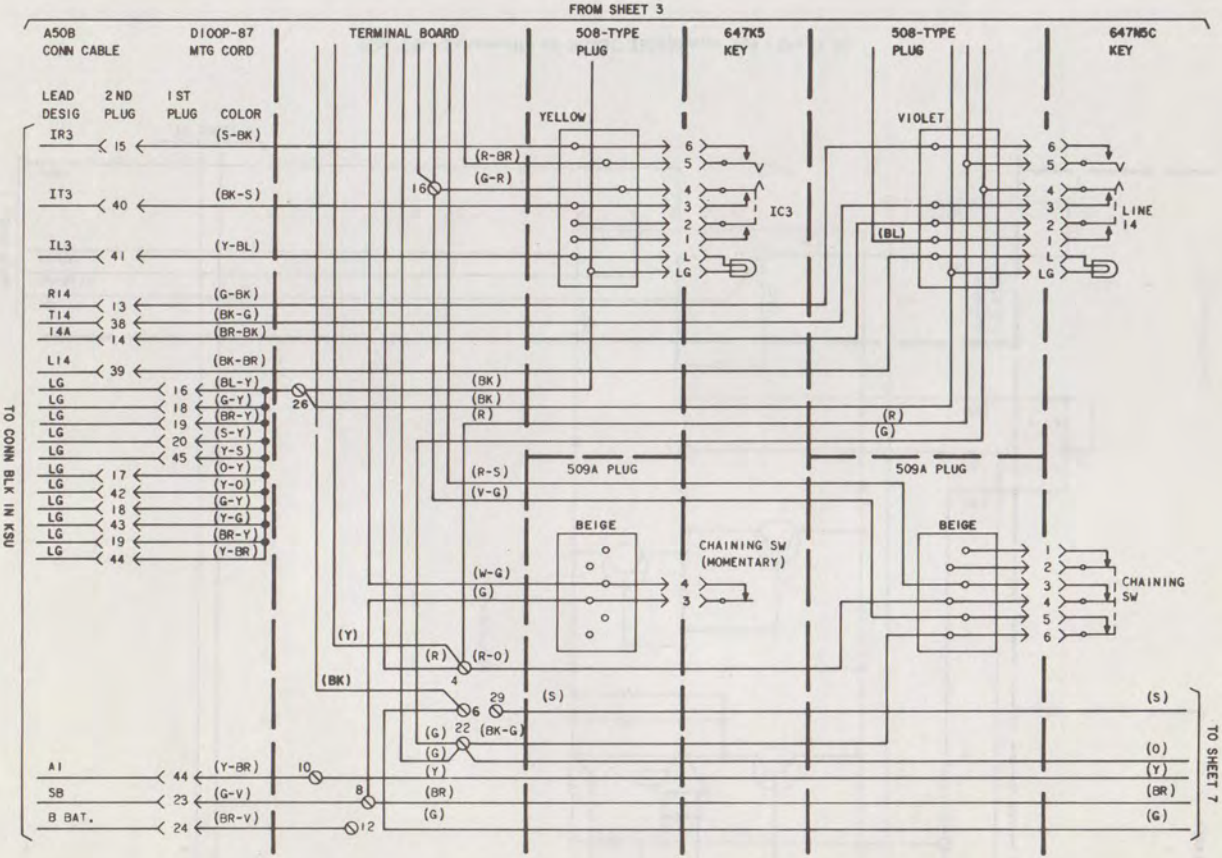


Fig. 19—Schematic of 2833C Telephone Set (Sheet 4)

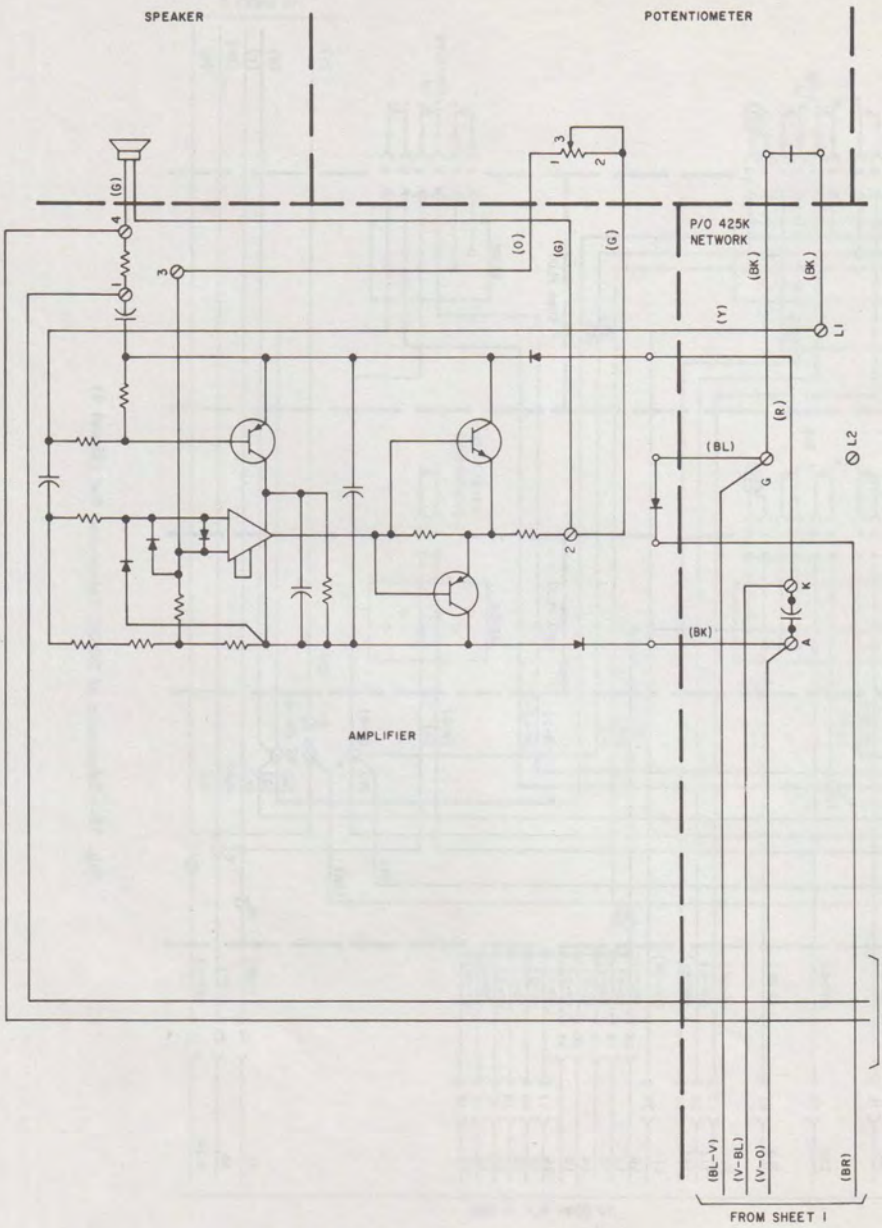


Fig. 19—Schematic of 2833C Telephone Set (Sheet 5)

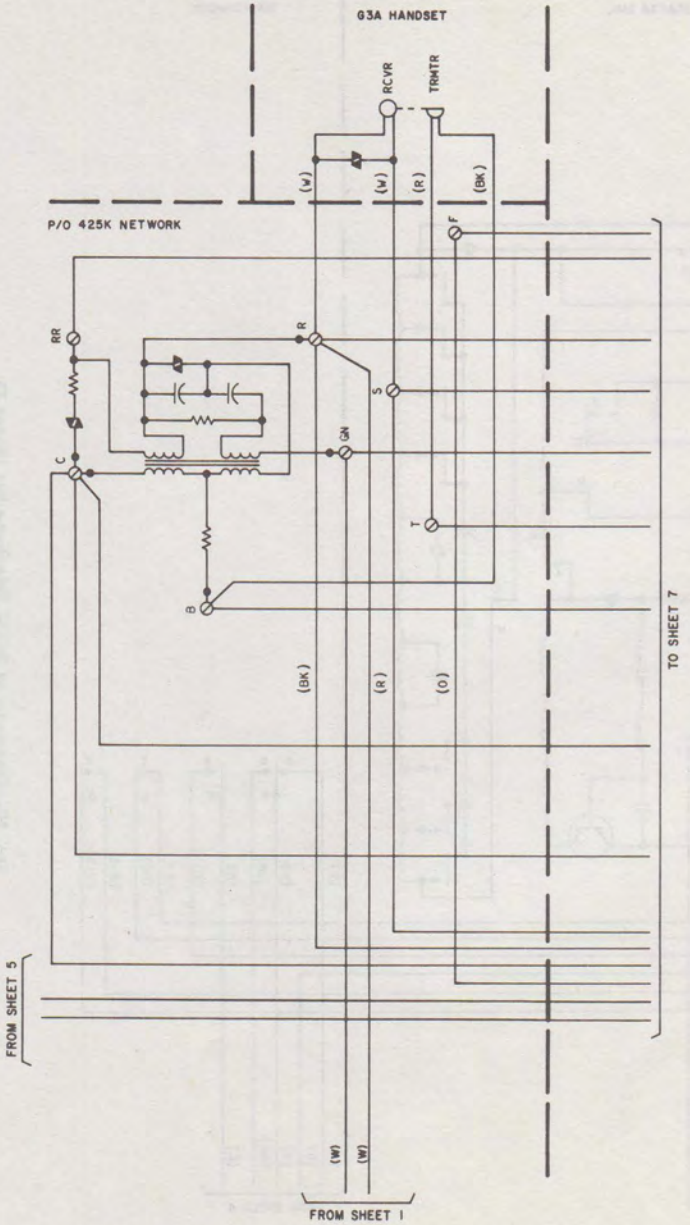


Fig. 19—Schematic of 2833C Telephone Set (Sheet 6)

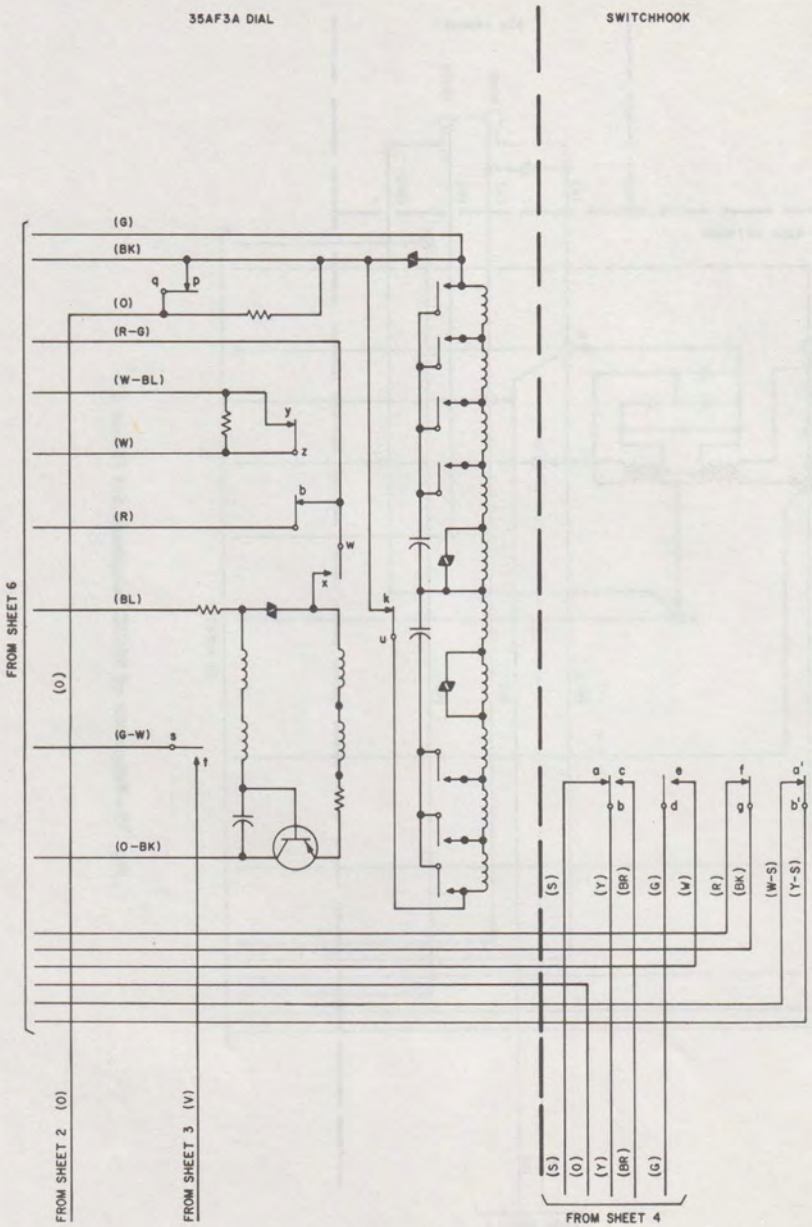


Fig. 19—Schematic of 2833C Telephone Set (Sheet 7)

TABLE D

CONNECTIONS FOR POWER FAILURE TRANSFER RINGER (EIC)

CONNECT LEADS*	
FROM TEL SET TERMINAL	TO RINGER TERMINAL
20	5
21	6

* Use inside wire.

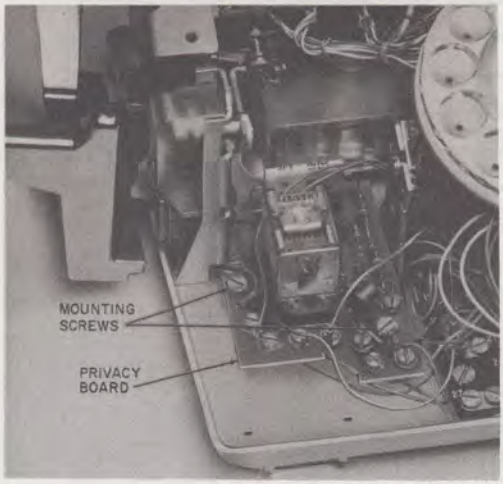


Fig. 20—Privacy Circuit Mounted in Telephone Set

33A Voice Coupler

3.16 Install voice coupler as follows:

(1) Remove cover from voice coupler.

(2) Mount voice coupler externally to KSU (wherever customer desires).

(3) Connect voice coupler to 580A KSU as shown in Fig. 23.

(4) Have customer connect voice coupler to his music source as shown in Fig. 23.

Caution: Ensure that 35P fuses are installed with the spring at the bottom.

(5) Replace cover on voice coupler.

4. CONNECTIONS

4.01 Terminate the incoming CO/PBX lines on connecting block 7 as shown in Fig. 13.

4.02 Cut down the station A50B connector cables on connecting blocks 6 through 15 as shown in Fig. 14. The first 25 pairs (blue binder) of the cable are connected on the upper blocks and the second 25 pairs (orange binder) are connected on the lower blocks. Intercom code 0 (attendant station) is terminated on column G of connecting blocks 6 and 7. Intercom station codes 7 through 39 are terminated on column H of connecting blocks 6 and 7 and columns A through H on connecting blocks 8 through 15.

OPTION CONNECTIONS

Power Failure Transfer

4.03 For the power failure transfer option, the tip and ring from each incoming CO/PBX line is brought out on connecting block 1 (Fig. 24) during power failure. The tip and ring of the desired CO/PBX line may be strapped to the V-S and S-V pair of the desired station by cross connection as shown in Fig. 24. In this instance the tip and ring of the first CO/PBX line is strapped to the V-S and S-V pair of station 7. This puts line ringing at station 7 if power failure should occur. The tip and ring must also be connected to the external ringer by an auxiliary cable at the telephone set.

4.04 Install 452A KTU. See Fig. 15 for KTU location.

4.05 For each location to be equipped with power failure transfer, an external ringer (E1C) must be installed at that location. See 3.13(a).

CO Ringing

4.06 Each CO/PBX line can be arranged to ring in the common audible group and at only one other station.

TABLE E

TELEPHONE SET CONNECTIONS
FOR PRIVACY CIRCUIT (D-180486, KIT OF PARTS)

COLOR	CONNECT LEAD TO TEL SET TERMINAL	MOVE LEAD	
		FROM TEL SET TERMINAL	TO PRIVACY BOARD TERMINAL
0*	8		
BR*	F on Network		
S*	15‡		
BK*	12		
BL*	6		
R†		13	P2
G-W†		13	P1
Y†		6	R1
0†		F on Network	T

* Privacy board leads.

† Tel set leads.

‡ Store slate lead under screw terminal S2 when privacy release is provided.

TABLE F

TELEPHONE SET CONNECTIONS
FOR PRIVACY RELEASE KEY

LEAD COLOR	REMOVE LEAD FROM TEL SET TERMINAL	CONNECT LEAD TO	
		TEL SET TERMINAL	PRIVACY BOARD TERMINAL
BK*	15	2§	S2
S†	15		S2
BK-BL‡	27	15	
G-W‡	27	2§	S2

* Tel set lead.

† If tel set has a privacy circuit and privacy release circuit is now being added.

‡ Leads from privacy release key.

§ If tel set does not have privacy circuit.

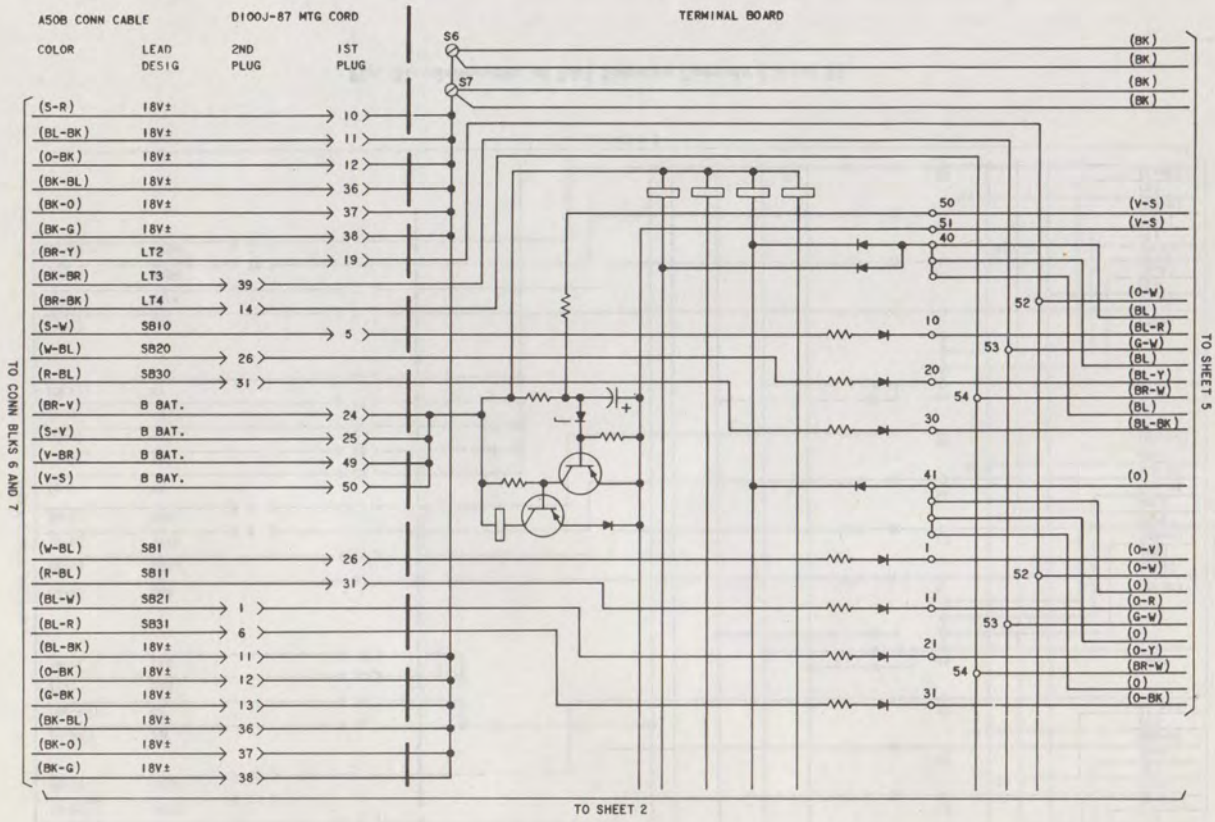


Fig. 21—Schematic of 7A1 Selector Console (Sheet 1)

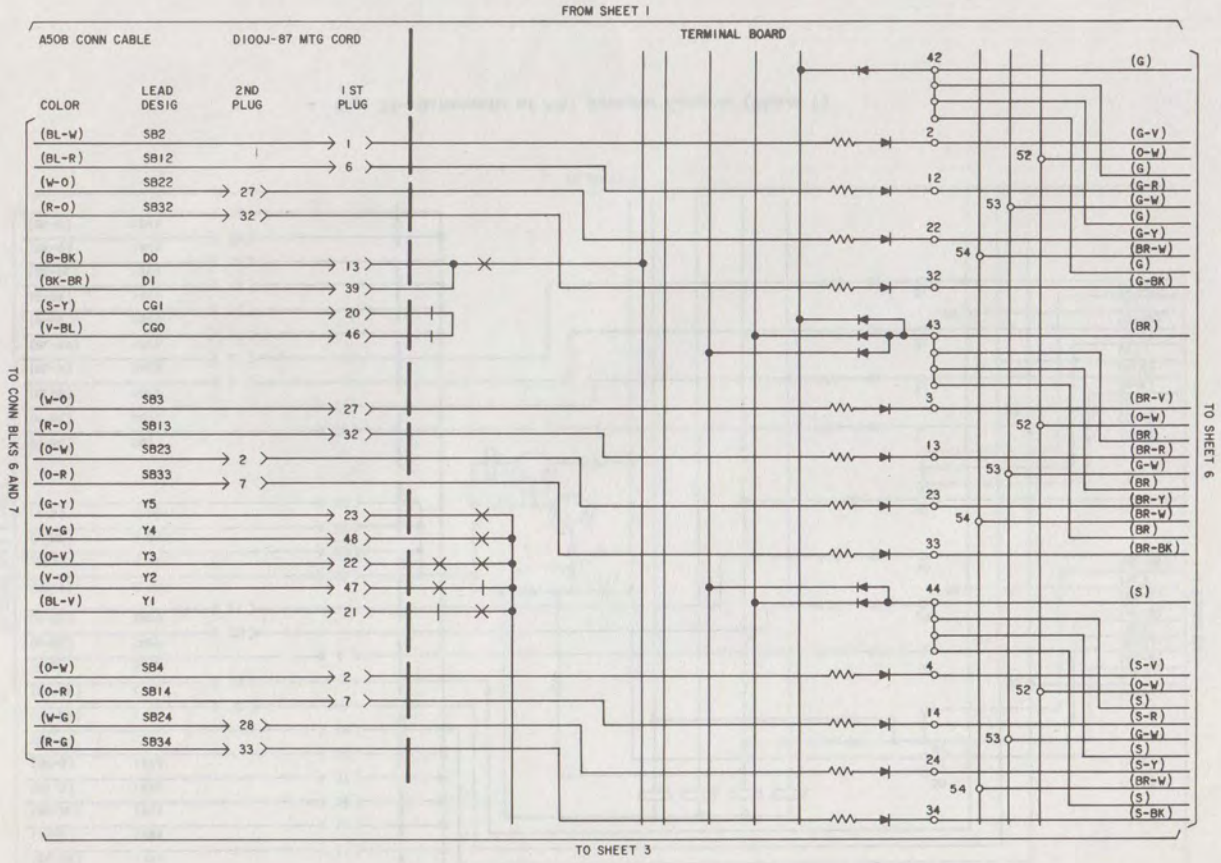


Fig. 21—Schematic of 7A1 Selector Console (Sheet 2)

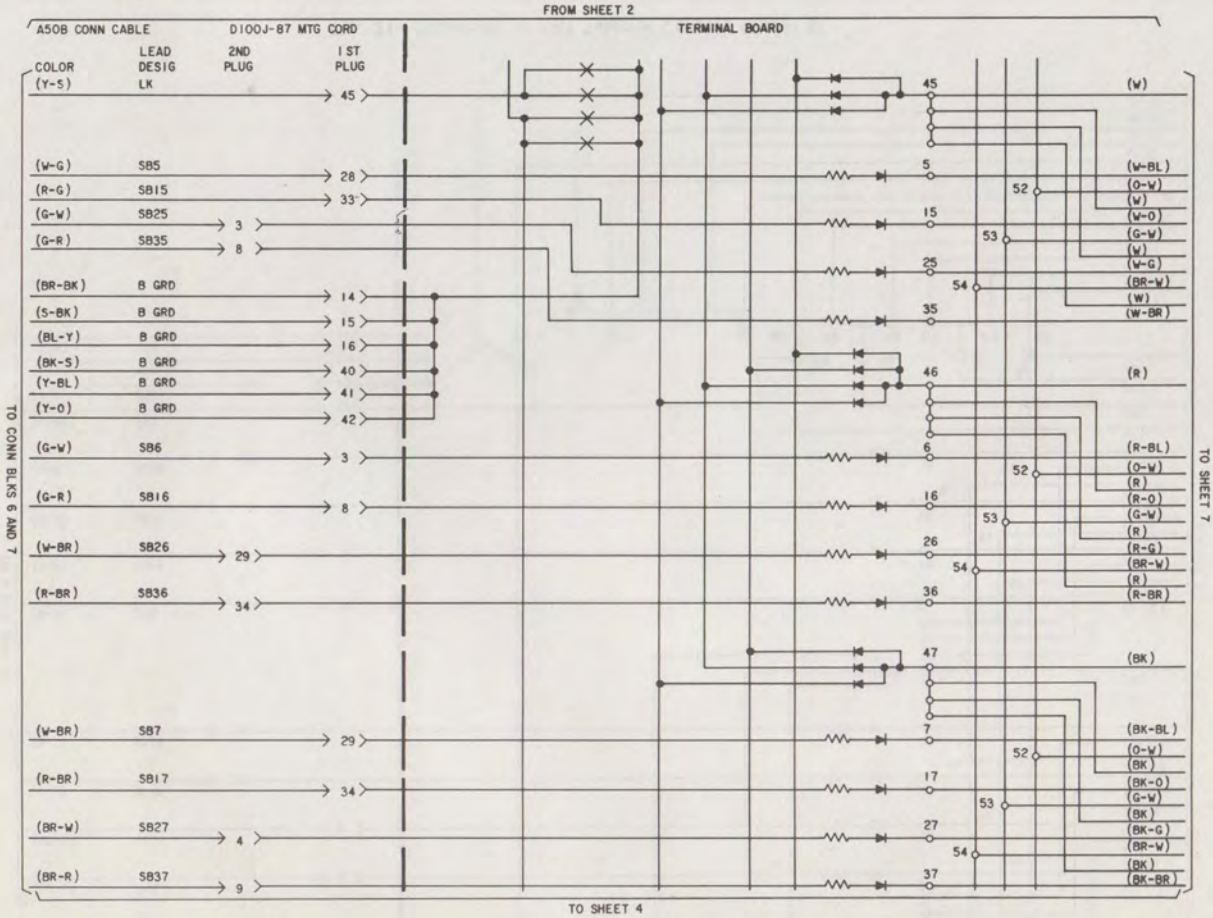


Fig. 21—Schematic of 7A1 Selector Console (Sheet 3)

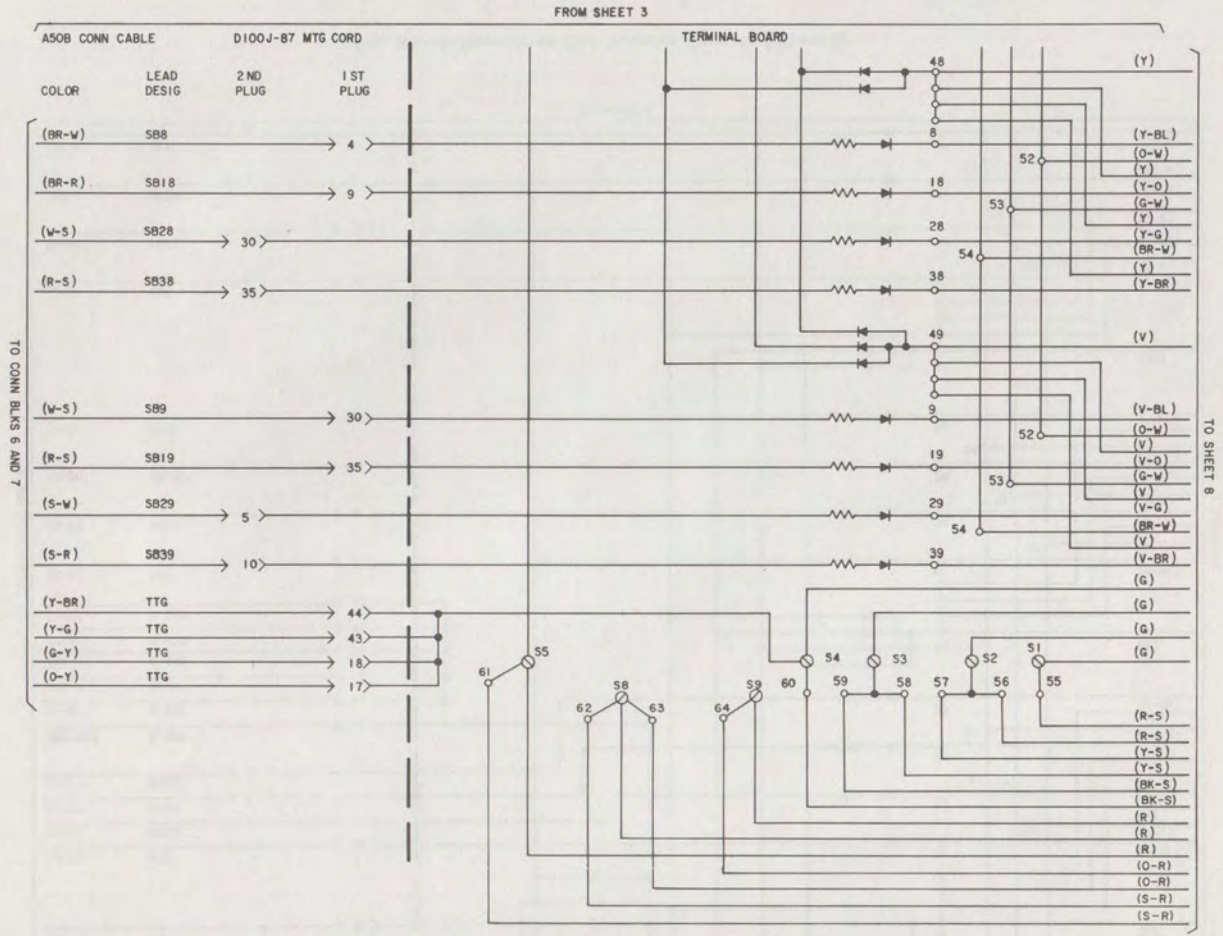


Fig. 21—Schematic of 7A1 Selector Console (Sheet 4)

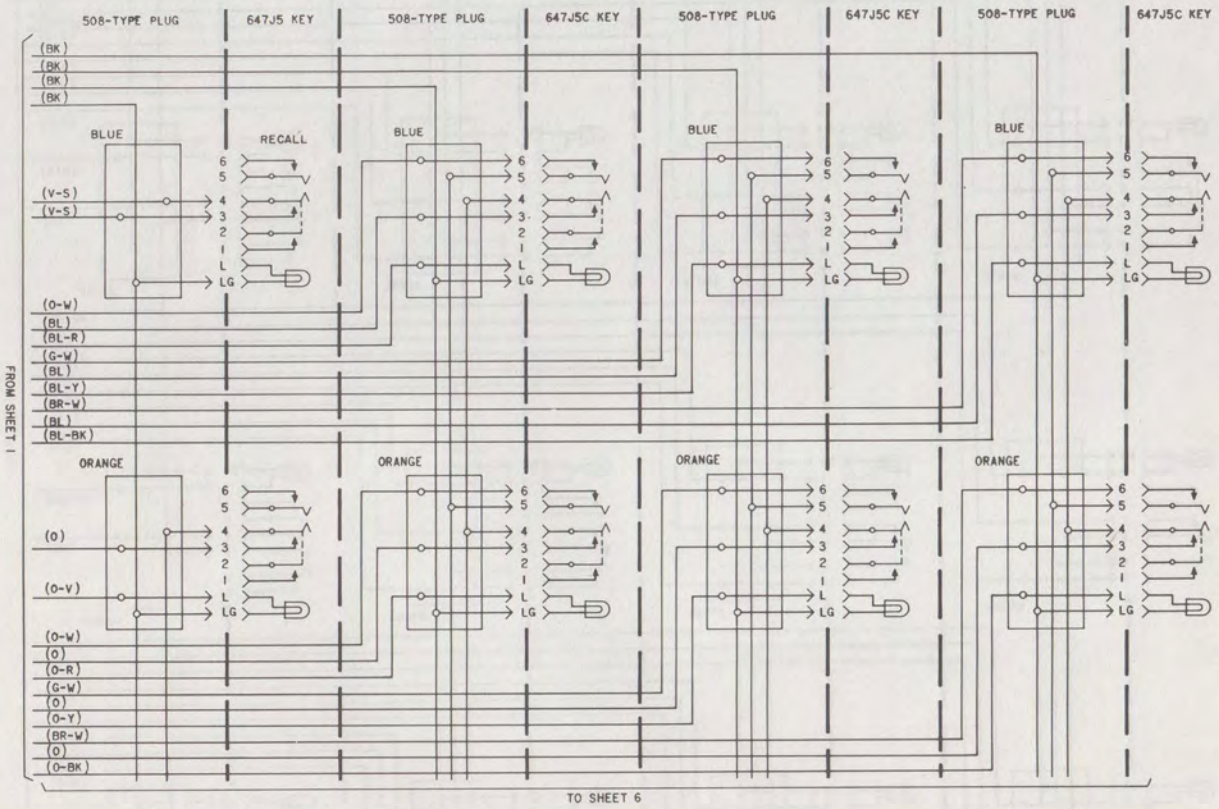


Fig. 21—Schematic of 7A1 Selector Console (Sheet 5)

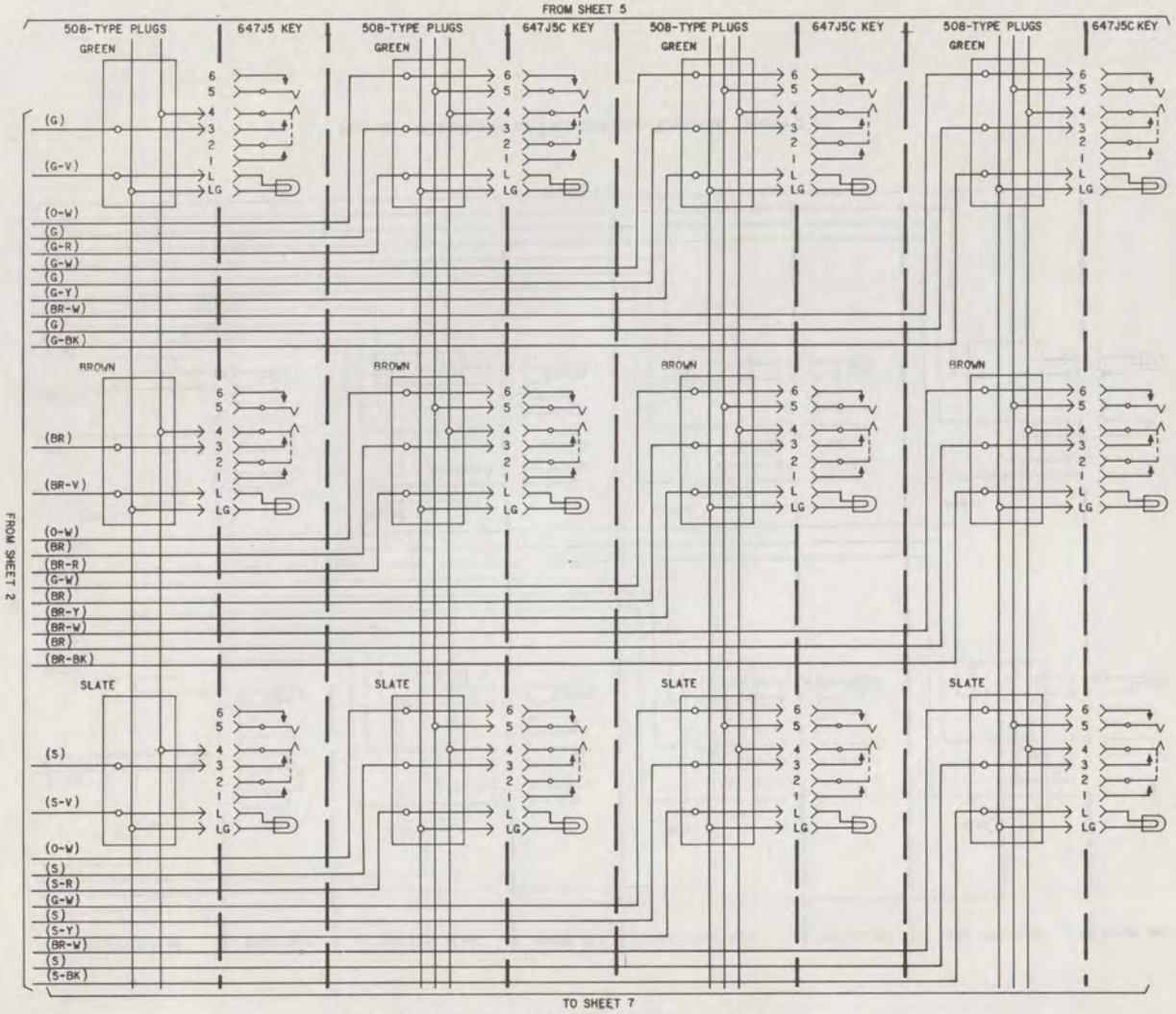


Fig. 21—Schematic of 7A1 Selector Console (Sheet 6)

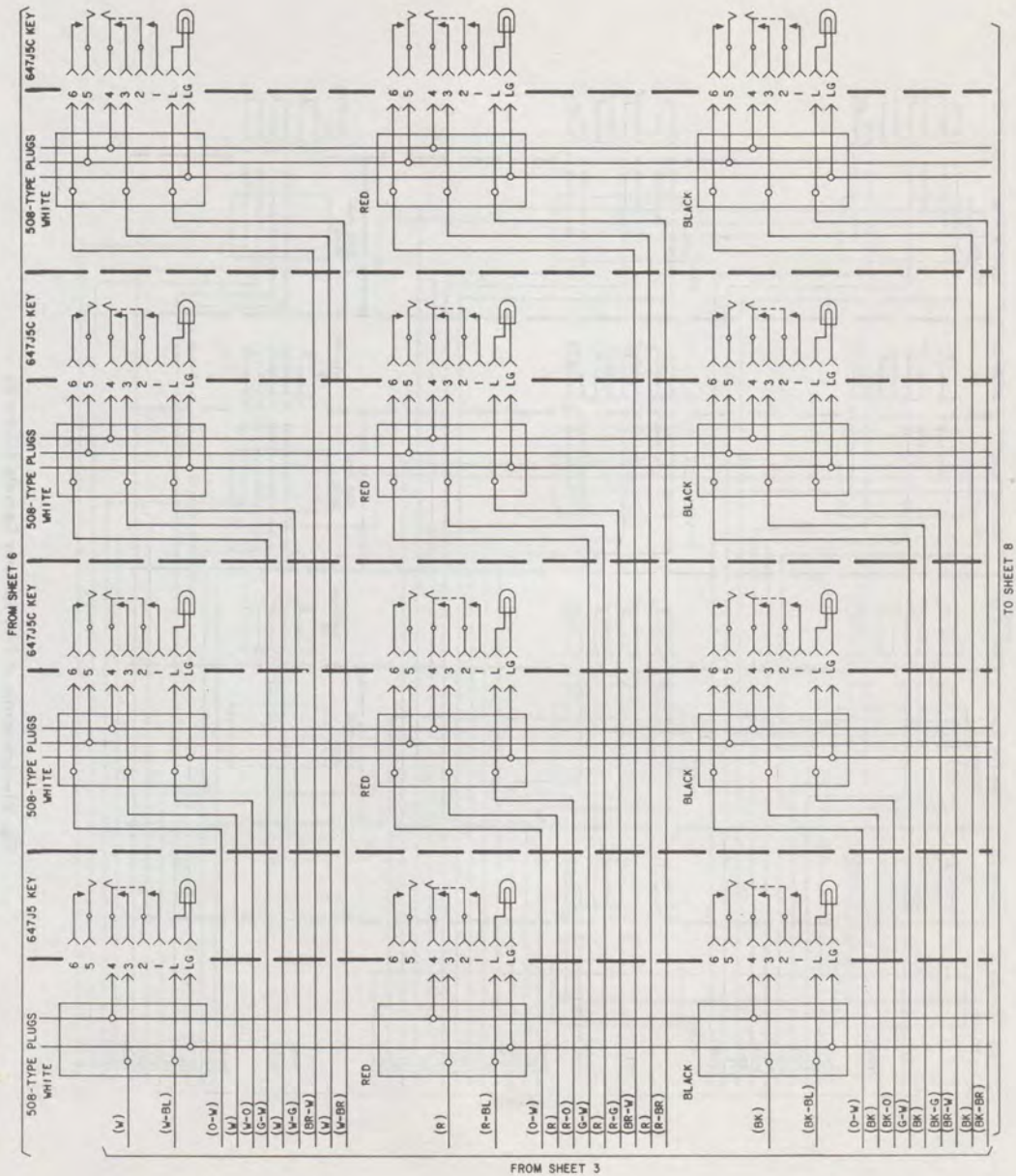


Fig. 21—Schematic of 7A1 Selector Console (Sheet 7)

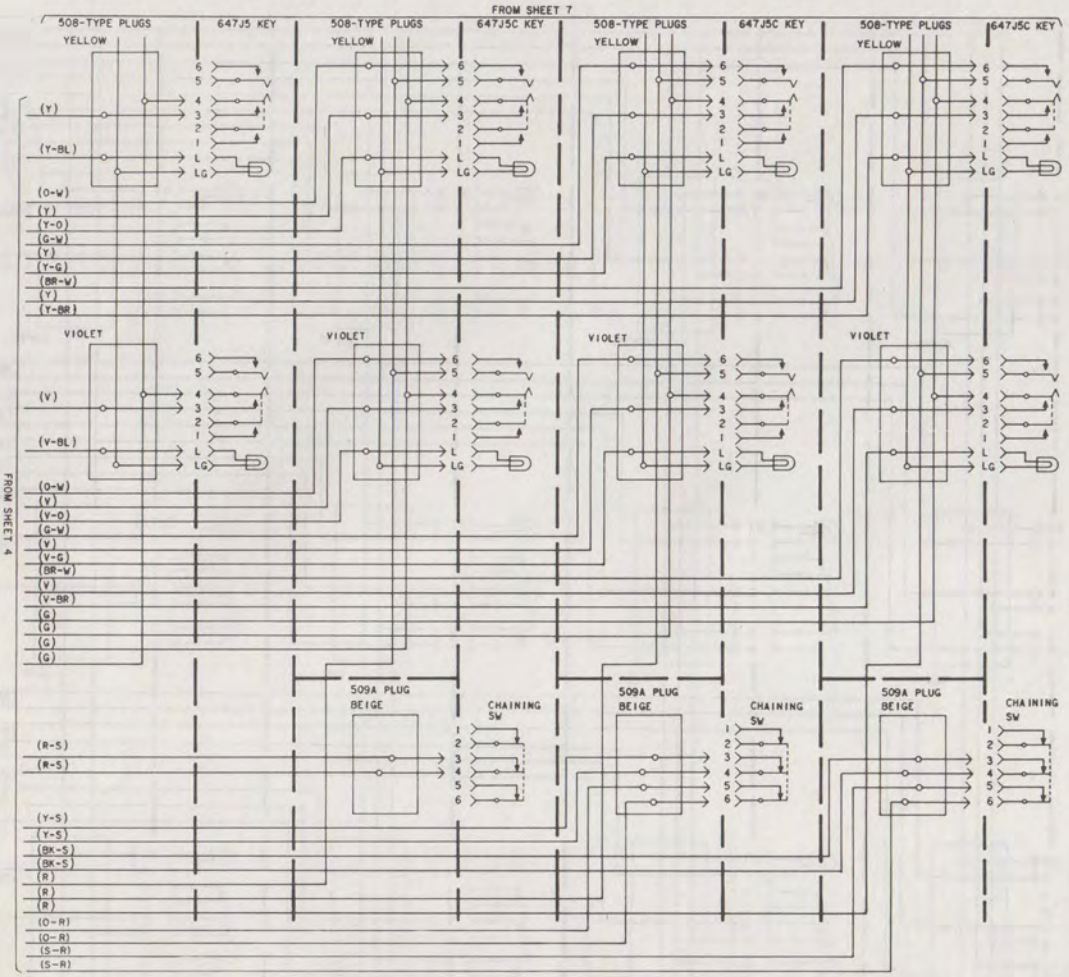


Fig. 21—Schematic of 7A1 Selector Console (Sheet 8)

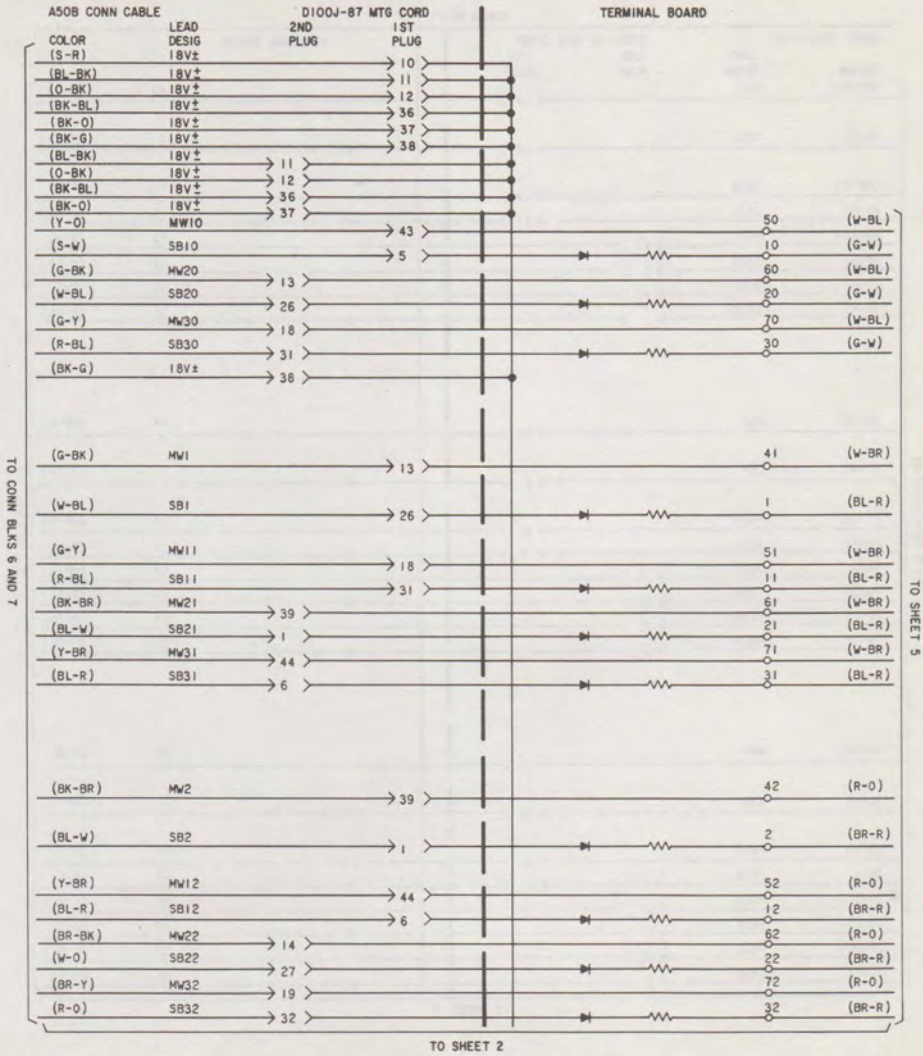


Fig. 22—Schematic of 7B1 Selector Console (Sheet 1)

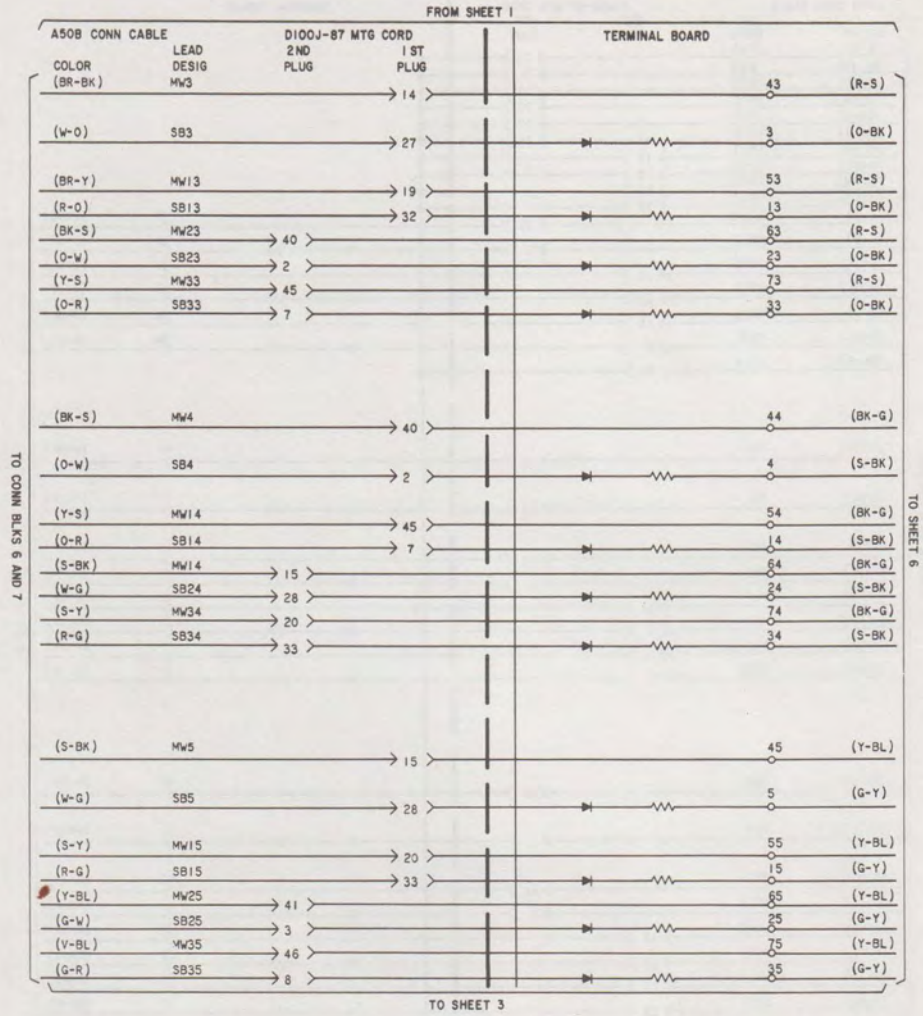


Fig. 22—Schematic of 7B1 Selector Console (Sheet 2)

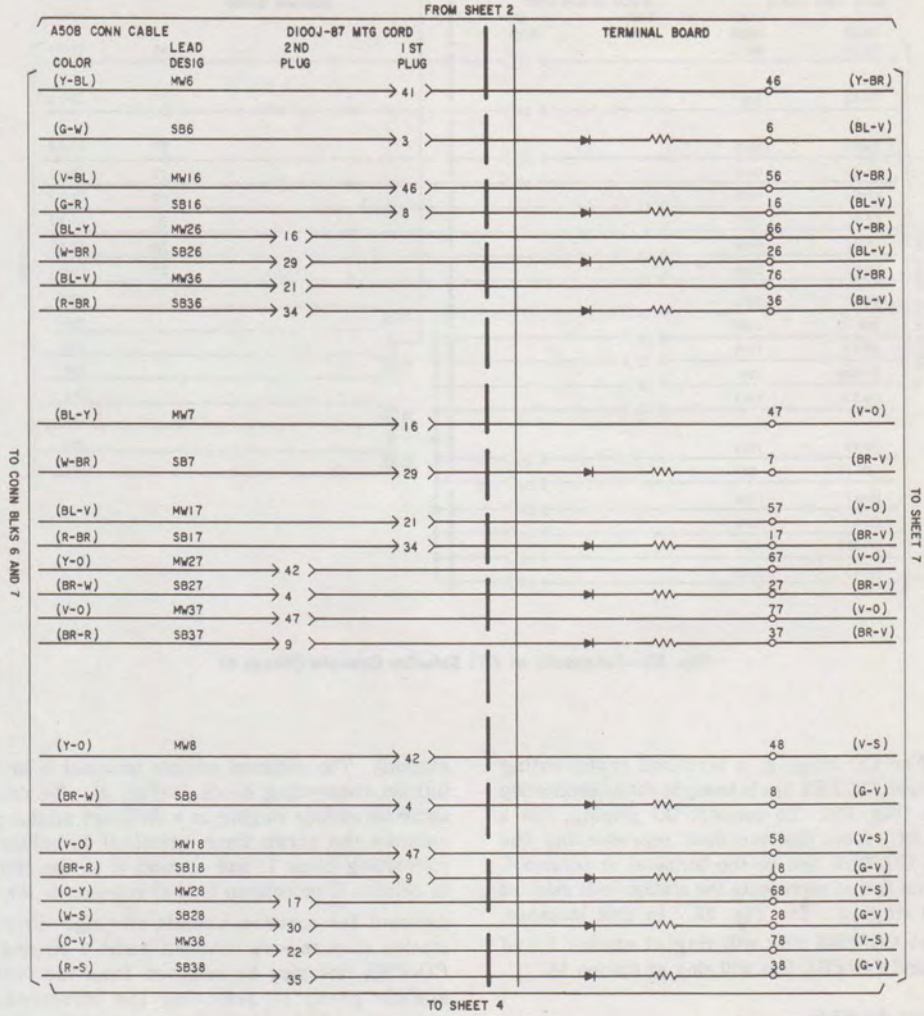


Fig. 22—Schematic of 7B1 Selector Console (Sheet 3)

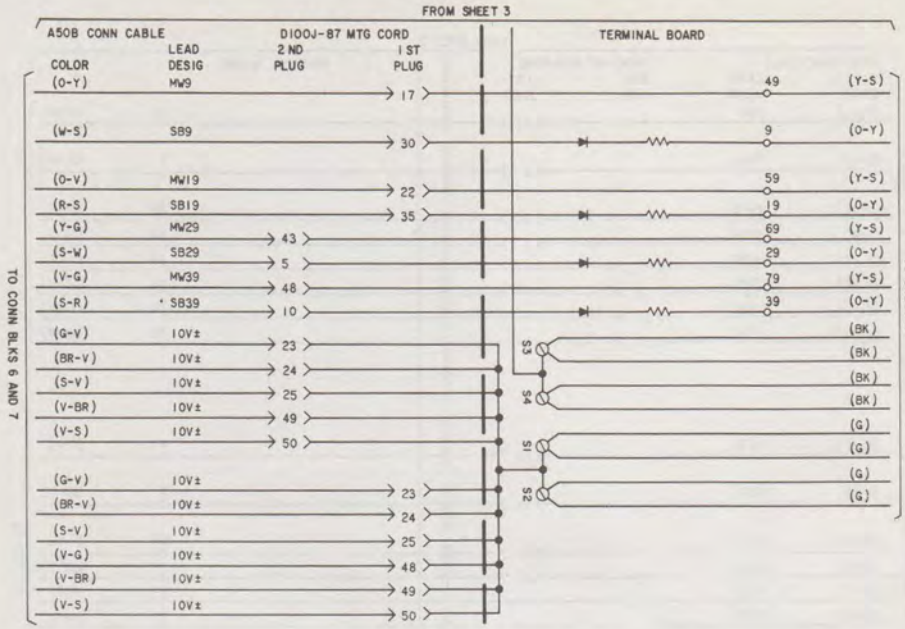


Fig. 22—Schematic of 7B1 Selector Console (Sheet 4)

4.07 For CO ringing, a terminal representing each CO/PBX line is brought out on connecting block 1 (Fig. 25). To connect CO ringing, run a strap (RC) from the terminal representing the desired CO/PBX line to the terminal in column C or column G that represents the station code selected for CO ringing. See Fig. 25. In this instance, the first CO/PBX line will ring at station 7 and the second CO/PBX line will ring at station 16.

Common Audible

4.08 Common audible ringing on CO/PBX lines is factory-strapped to code 0 (attendant station). The common audible terminal is brought out on connecting block 1 (Fig. 4). To connect common audible ringing to a different station code, remove the strap from terminal 1, column C, connecting block 1, and connect it to the terminal in column C or column G that represents the code selected for common audible ringing. Only one station may receive common audible ringing. A CO/PBX line may be removed from the common audible group by removing the corresponding common audible diode from connecting block 2 (Fig. 5).

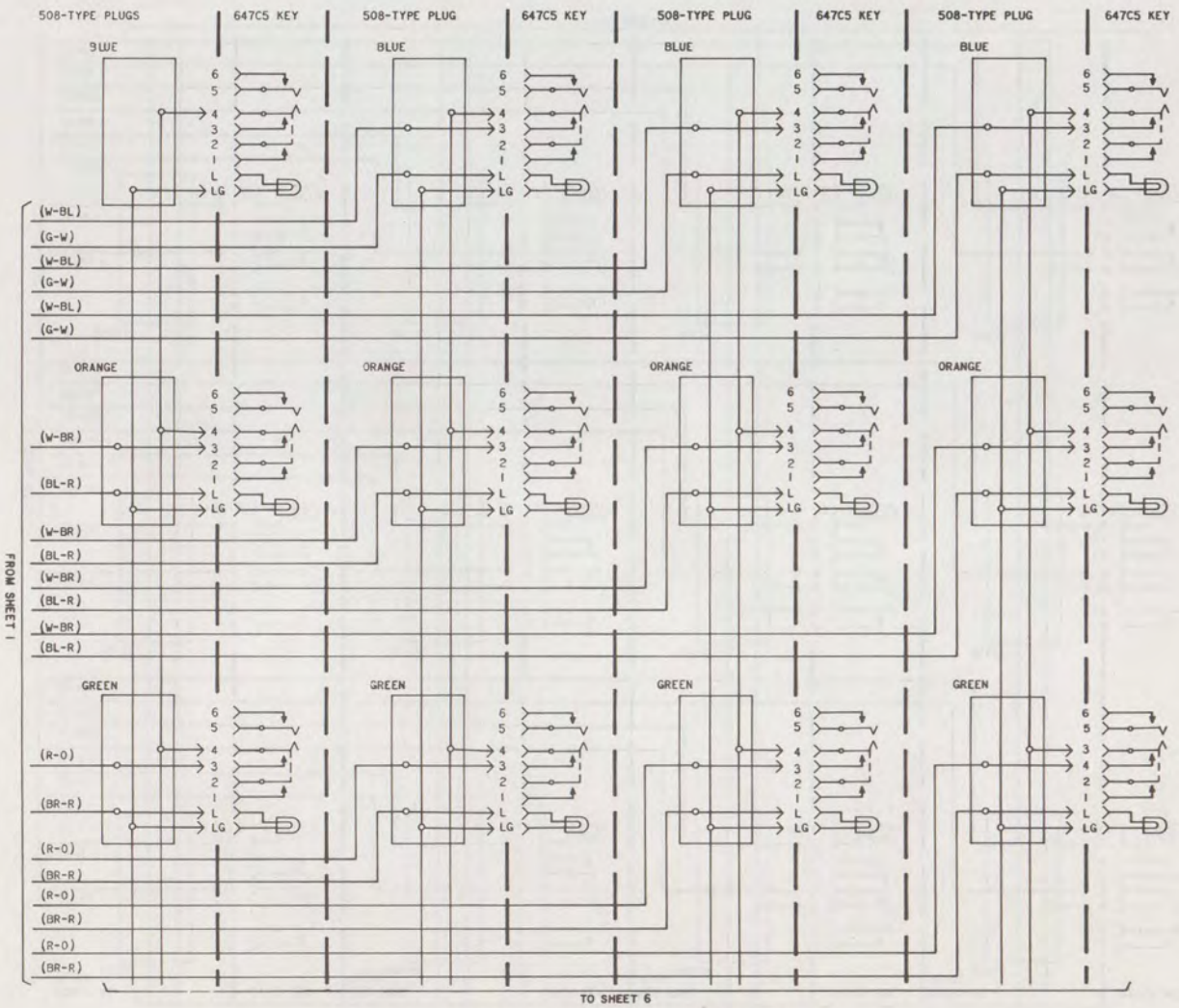


Fig. 22—Schematic of 7B1 Selector Console (Sheet 5)

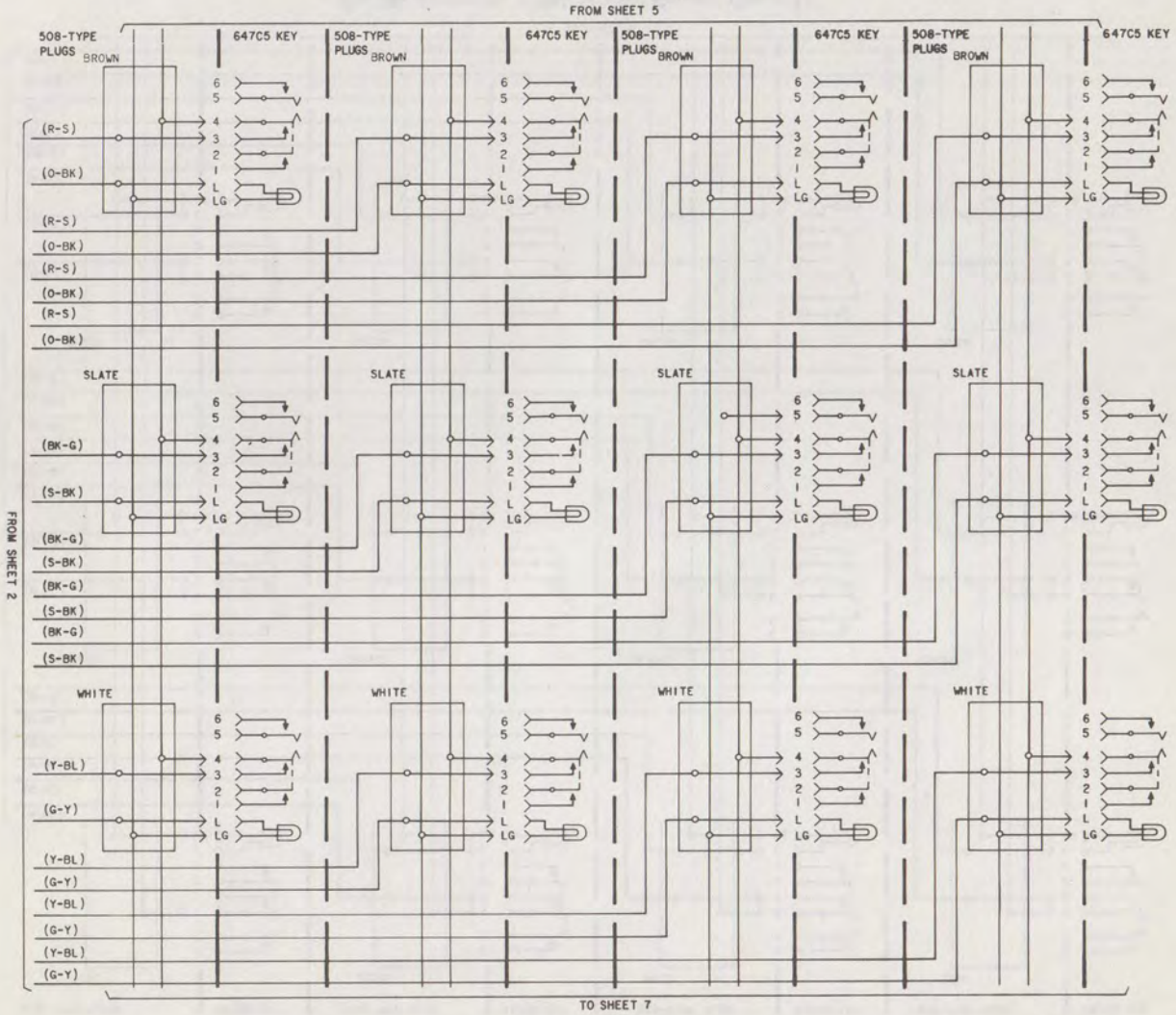


Fig. 22—Schematic of 7B1 Selector Console (Sheet 6)

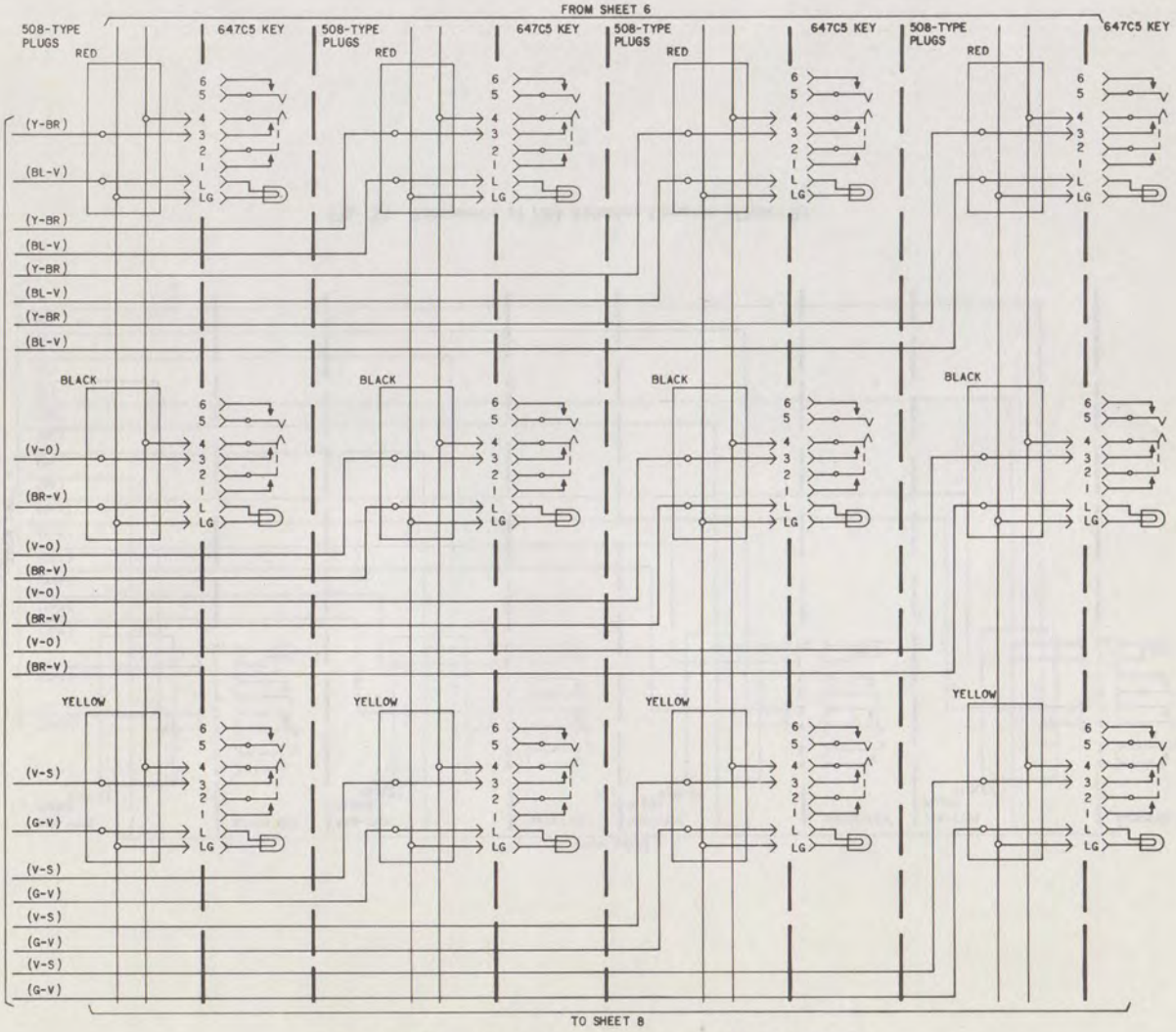


Fig. 22—Schematic of 7B1 Selector Console (Sheet 7)

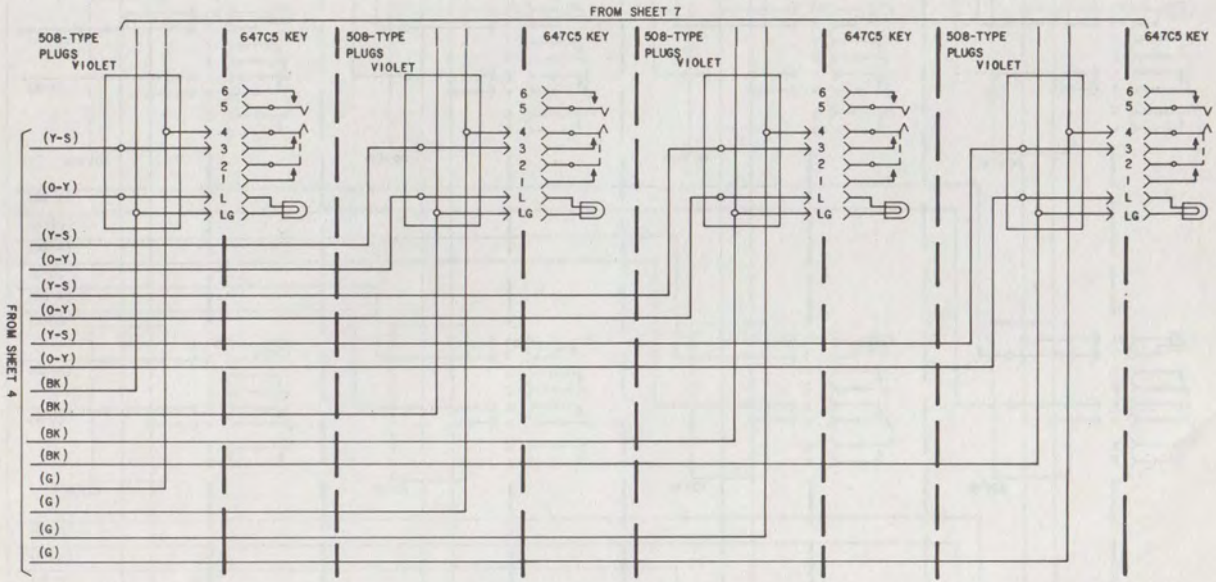


Fig. 22—Schematic of 7B1 Selector Console (Sheet 8)

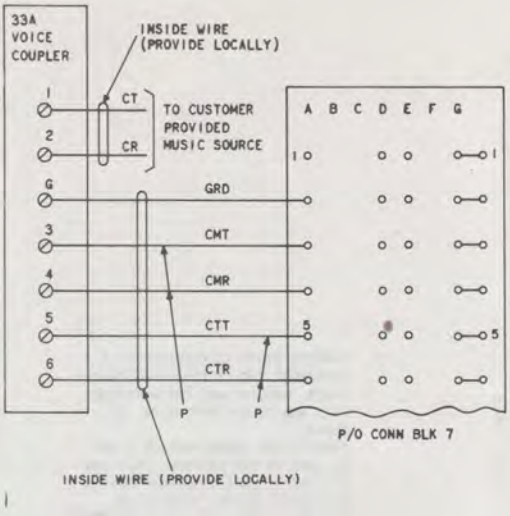


Fig. 23—Connections for 33A Voice Coupler

When the common ringing is moved to another station, the new attendant station cannot have the night transfer option.

Intercom Preset Conference

4.09 Intercom preset conference allows up to five stations to be alerted simultaneously. When intercom preset conference is used, station code 39 is forfeited.

4.10 To connect intercom preset conference, strap the terminals in the preset conference row to the desired stations in columns D or H on connecting block 1 (Fig. 26). For example, Fig. 26 shows stations 7, 14, and 21 wired for preset conference. The factory-provided strap between terminal 24, column E and terminal 17, column H must be removed.

Paging, Background Music, and Music-on-Hold

4.11 Paging may be provided in three separate zones with each zone providing up to seven indoor or outdoor speakers (Fig. 27). The system has the flexibility of allowing all paging amplifiers or any combination of paging amplifiers to be activated by dialing any one of the digits (4, 5, or 6). See Table G for programming zone paging. ***The straps must be placed before paging amplifiers will operate.***

4.12 A paging system should be loud enough to be heard but not loud enough to annoy those who work near the speakers. The number and location of speakers are influenced mainly by the environment in which the speakers will be located. Fig. 28 shows several examples of speaker placement, however, this is only a rough guideline. It may be necessary to experiment with speaker placement on site to achieve the desired results.

4.13 Make paging connections as shown in Fig. 27 and Table G. Speaker wiring should be run separately and not part of a voice cable. Quad cable should be used with both pairs connected. Speakers should be hung as close to the ceiling as possible. Maximum speaker distance from the KSU is 580 feet.

When using outdoor speakers, the speaker leads must be grounded in accordance with local instructions.

4.14 For background music and/or music-on-hold, the 33A voice coupler must be installed and connected to the KSU and customer-provided music source according to 3.16.

4.15 Install 451A KTUs in J27 and J29. See Fig. 15 for KTU location.

4.16 The 33A voice coupler presents an 8-ohm load to the customer-provided music source.

Caution: Only 45-ohm speakers may be used.

Alignment procedure for paging background music and music-on-hold is as follows:

(1) Turn potentiometer on 33A voice coupler to full CCW position.
(2) Place CO call to a 14A station.
(3) Answer call and place it on hold.
(4) Have customer adjust his music source for a comfortable listening level at the held station.
(5) Disconnect call.
(6) Dial paging code and adjust

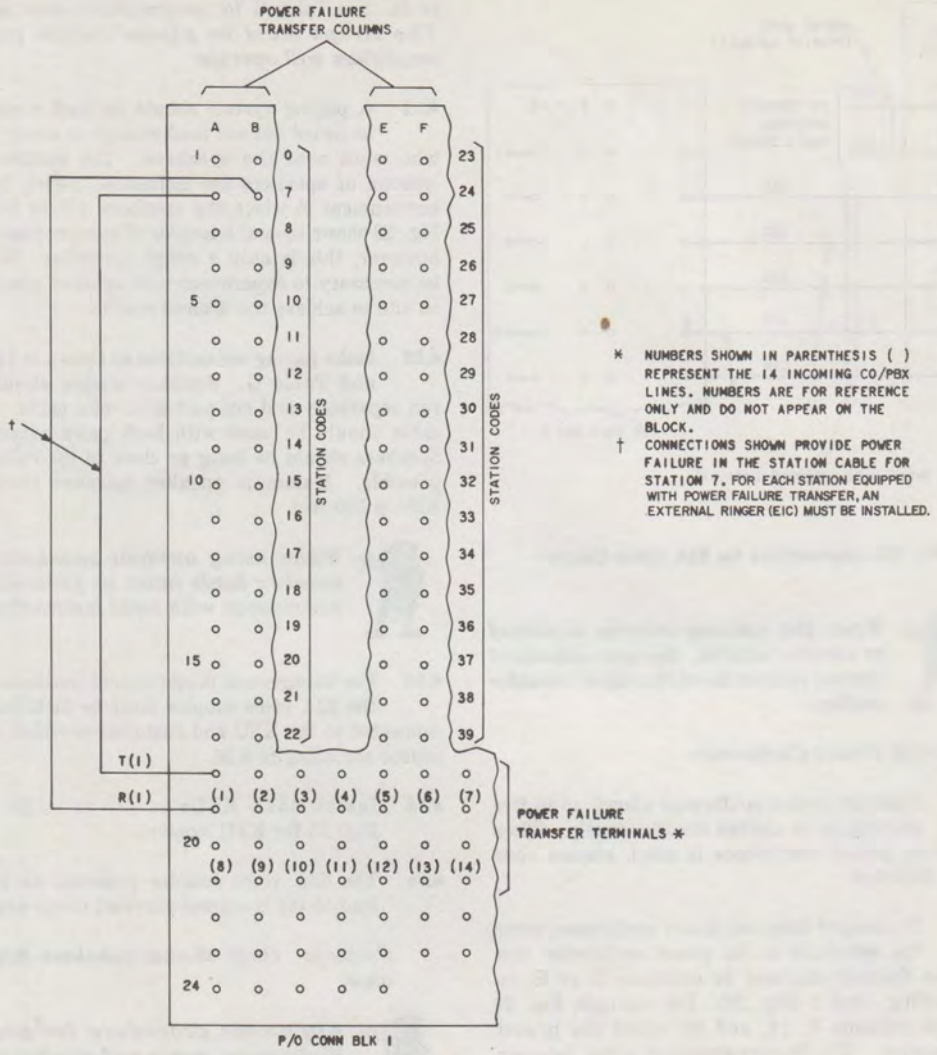


Fig. 24—Connections for Power Failure Transfer

potentiometer on each paging speaker for proper volume while paging in a normal voice.

(7) Disconnect.

(8) Have customer adjust potentiometer on voice coupler for desired level of background music over paging system.

(9) Inform customer after alignment is complete that if he readjusts the gain of his music source both music-on-hold and background music will be affected.

If the customer has paging and

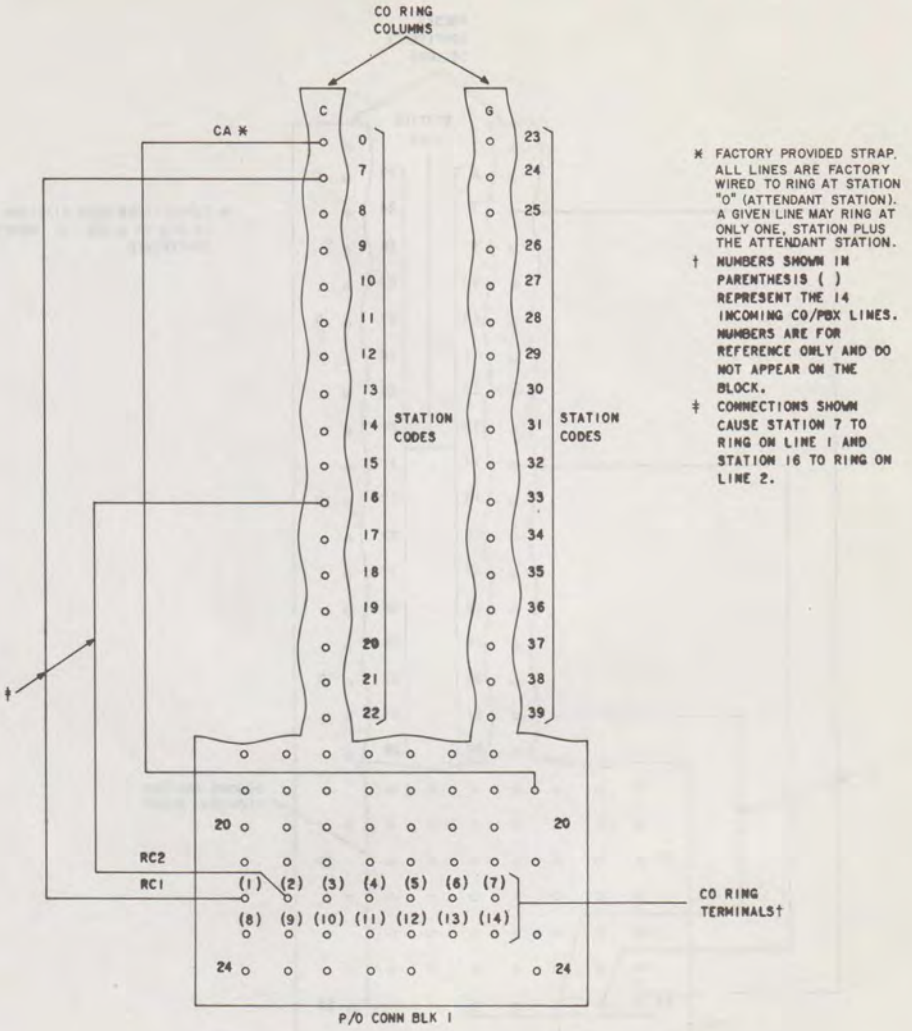


Fig. 25—Connections for CO Ringing

music-on-hold, but does not want background music, the potentiometer on the voice coupler should remain in the CCW position.

The customer-provided music source should be able to deliver up to one watt into an 8-ohm load. The 33A voice coupler will accept input from any customer-provided apparatus that does not blow the fuses in the voice coupler. If the customer wants a copy of the Technical Reference covering the 33A voice coupler, contact the local Telephone Company Business Office or Marketing Representative. If a service call is caused by a malfunction of the customer-provided equipment,

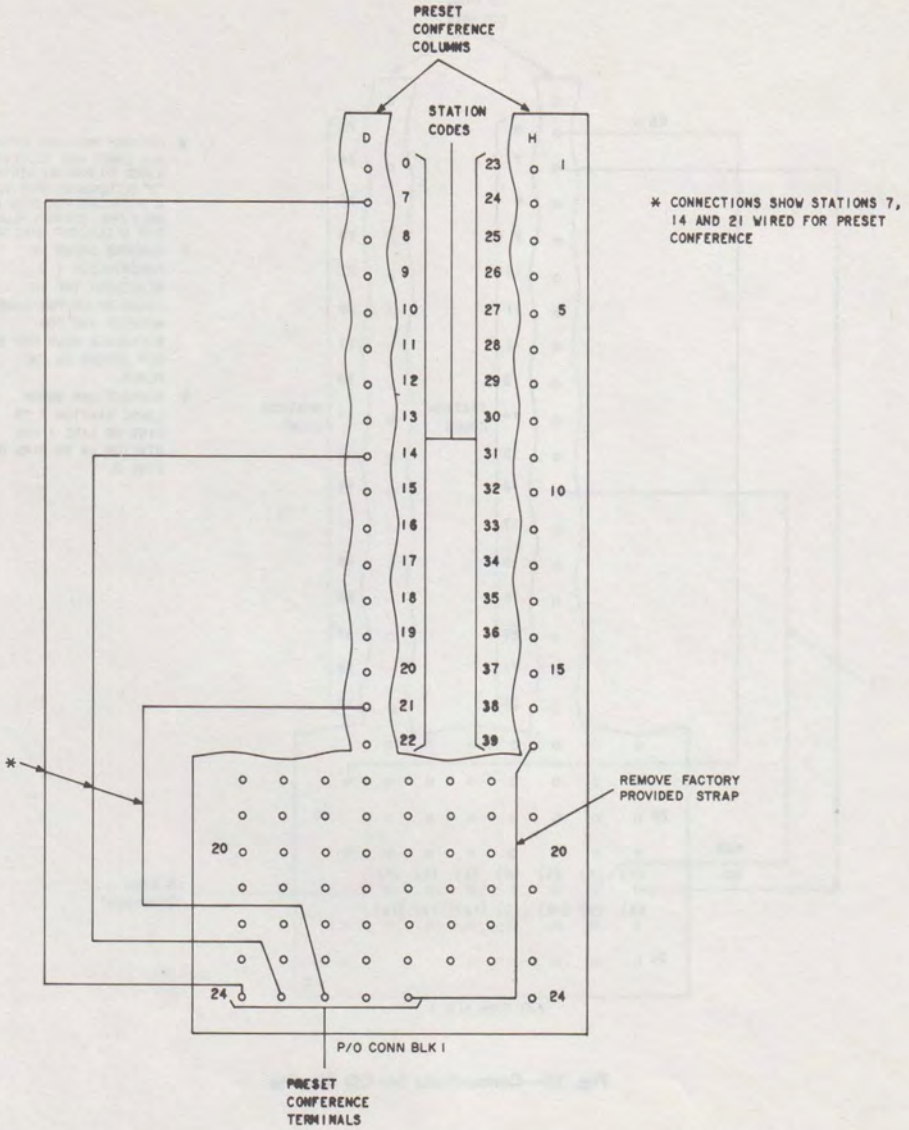
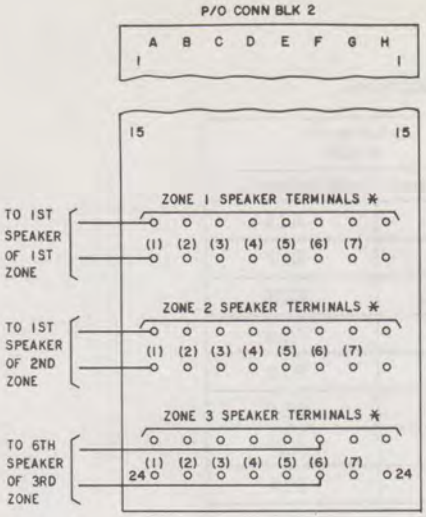


Fig. 26—Connections for Preset Conference



* NUMBER SHOWN IN PARENTHESIS ( ) REPRESENT THE 7 PAIRS OF SPEAKER TERMINALS IN EACH ZONE. NUMBERS ARE FOR REFERENCE ONLY AND DO NOT APPEAR ON THE BLOCK.

Fig. 27—Connections for Paging

billing should be made in accordance with Section 660-101-312.

Night Transfer

4.17 Night transfer is provided in the attendant telephone set (833C and 2833C). In the 580A KSU a strap must be run from the NT terminal (column H, terminal 21) on connecting block 1 to the station code (columns C and G) selected for night transfer. For example, Fig. 29 shows station 15 wired for night transfer. See Fig. 29 for connections.

7A1 Selector Console (Station Busy Console With DSS)

4.18 The A50B connector cable from the DSS console is cut down on column E of connecting blocks 6 and 7. The first 25 pair (blue binder) is cut down on connecting block 6 and the second 25 pair (orange binder) cut down on connecting block 7 using standard cut down. ***The D0 to D1, CG0 to CG1 straps must be removed.*** See Fig. 30 for connections.

7B1 Selector Console (Station Busy Console With MW)

4.19 The A50B connector cable from the message waiting console is cut down on column D of connecting blocks 6 and 7. The first 25 pair (blue binder) is cut down on connecting block 6 and the second 25 pair (orange binder) is cut down on connecting block 7 using the standard cut down. See Fig. 31 for connections.

TOUCH-TONE Dialing

4.20 When TOUCH-TONE dialing is provided, ***the RS1 to CG strap (column H, terminal 23 to 24 connecting block 1) must be removed*** and 440A KTU must be inserted in J21 and J22. See Fig. 15 for KTU location.

3B Speakerphone

4.21 Connect the D10R cord between the telephone set and 55B control unit. Connect the 666B transmitter, 760A loudspeaker and 2012B transformer to the 55B control unit. See Table H for connections. Plug 2012B transformer into ac receptacle.

4A Speakerphone

4.22 See Fig. 32 for 4A speakerphone arrangement.

4.23 Install 223A adapter within cords length (7 ft) of telephone set. Connect M16C cord to telephone set as shown in Table I. Plug loudspeaker, transmitter, and power cords into 223A adapter. Plug 85B1 power unit into ac receptacle.

TESTING

4.24 Apply power to 580A KSU and test operation of the system. When satisfied that the

TABLE G

ZONE PAGING CONNECTIONS

TO ACTIVATE AMPLIFIER	WITH CODE	CONN BLK 3 STRAP	
		TERMINAL	TO TERMINAL
1st 457C KTU in Conn J28	4	B4	A13
	5	B8	B13
	6	B12	C13
2nd 457C KTU in Conn J30	4	D4	A14
	5	D8	B14
	6	D12	C14
3rd 457C KTU in Conn J32	4	F4	A15
	5	F8	B15
	6	F12	C15

system is operating satisfactorily, replace cover on KSU.

5. METHOD OF OPERATION

Note: Unintentional conferencing may result if buttons are depressed at an idle station on lines in use at another station.

ANSWERING CALLS

Incoming Call on CO/PBX Lines (Attendant Station)

5.01 When an audible tone signal sounds and lamp under associated CO/PBX button flashes, answer call as follows:

(1) Lift handset.

(2) Depress CO/PBX button associated with flashing lamp—audible signal is silenced and lamp under CO/PBX button goes steady.

(3) Answer call—acknowledge calling parties request.

5.02 To forward CO/PBX call to another station:

(1) Place calling party on hold—depress hold button.

(2) Select idle intercom path (lamp off) and depress associated intercom button—intercom lamp flashes.

(3) Dial selected station number—tone generator signals called station with a spurt of tone.

(4) Inform called party of CO/PBX line to be pickup up—intercom lamp goes steady when called party answers.

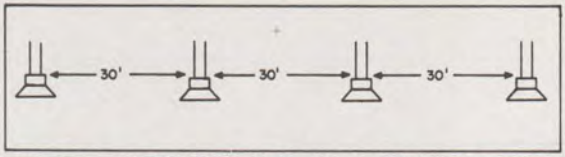
(5) Replace handset—all depressed buttons will restore to normal.

Intercom to Intercom Call

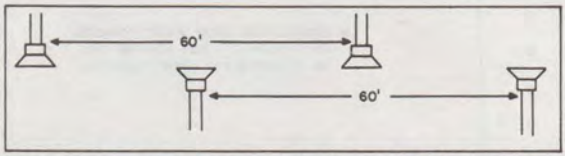
5.03 When intercom tone signal sounds:

(1) Calling party will tell you whether to: (a) answer incoming CO/PBX call, (b) answer intercom call, (c) take appropriate action.

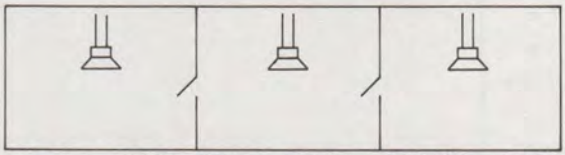
(2) If necessary lift handset.



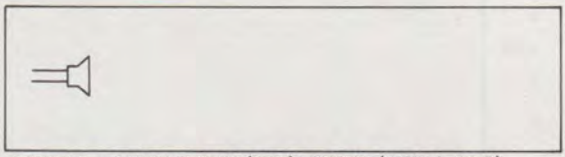
EXAMPLE A - SPEAKERS LOCATED ON ONE WALL OF ROOM (NOTES 1, 2 AND 3)



EXAMPLE B - SPEAKERS LOCATED ON OPPOSITE WALLS OF ROOM (NOTES 1 AND 2)



EXAMPLE C - SPEAKERS LOCATED IN INDIVIDUAL ROOMS (NOTES 1, 2 AND 4)



EXAMPLE D - OUTSIDE SPEAKER (HORN) LOCATION (NOTES 2 AND 5)

NOTES:
1. EXAMPLES A, B AND C ARE FOR QUIET OR OFFICE TYPE ENVIRONMENTS. FOR A NOISY ENVIRONMENT, DISTANCE BETWEEN SPEAKERS MUST BE REDUCED TO A DISTANCE THAT WILL PROVIDE THE SAME LISTENING LEVEL.
   ALL SPEAKERS SHOULD BE LOCATED AT LEAST 60 FEET FROM ANY STATION USED FOR PAGING.
2. SPEAKER WIRING SHOULD BE RUN SEPARATELY, NOT PART OF A VOICE CABLE. QUAD CABLE SHOULD BE USED WITH BOTH PAIRS CONNECTED. SPEAKERS SHOULD BE HUNG AS CLOSE TO THE CEILING AS POSSIBLE. MAXIMUM SPEAKER DISTANCE FROM THE KSU IS 580 FEET.
3. SPEAKERS REACH A DEPTH OF 30 FT. IF ROOM IS OVER 30 FT. WIDE, FACING SPEAKERS SHOULD BE USED.
4. ONE SPEAKER WILL SERVE A ROOM UP TO 25 FT. BY 25 FT.
5. ONE SPEAKER (HORN) MOUNTED 20 FT. ABOVE GROUND LEVEL WILL COVER AN AREA APPROXIMATELY 80 FT. BY 100 FT. IF THE HORN IS MOUNTED LESS THAN 20 FT. ABOVE GROUND LEVEL, TWO HORNS MUST BE USED. HORNS SHOULD NOT BE MOUNTED LESS THAN 15 FT. ABOVE GROUND LEVEL. IF MORE THAN ONE HORN IS USED, THEY SHOULD BE MOUNTED VERTICALLY, RATHER THAN SIDE-BY-SIDE.

Fig. 28—Examples of Paging Speaker Locations

(3) Depress flashing intercom button or appropriate line button.

(4) Answer call.

PLACING CALLS

Outgoing Call (Any Station)

5.04 To make an outgoing call:

(1) Lift handset.

(2) Depress CO/PBX button associated with an idle line.

(3) Dial number.

Intercom Call (Station to Station)

5.05 To make an intercom call:

(1) Lift handset.

(2) Select idle intercom path and depress associated button.

Note: If lamp is flashing on other link, you will have to wait until the selector is released. While the selector is seized by another station, no dial tone or other indication is available.

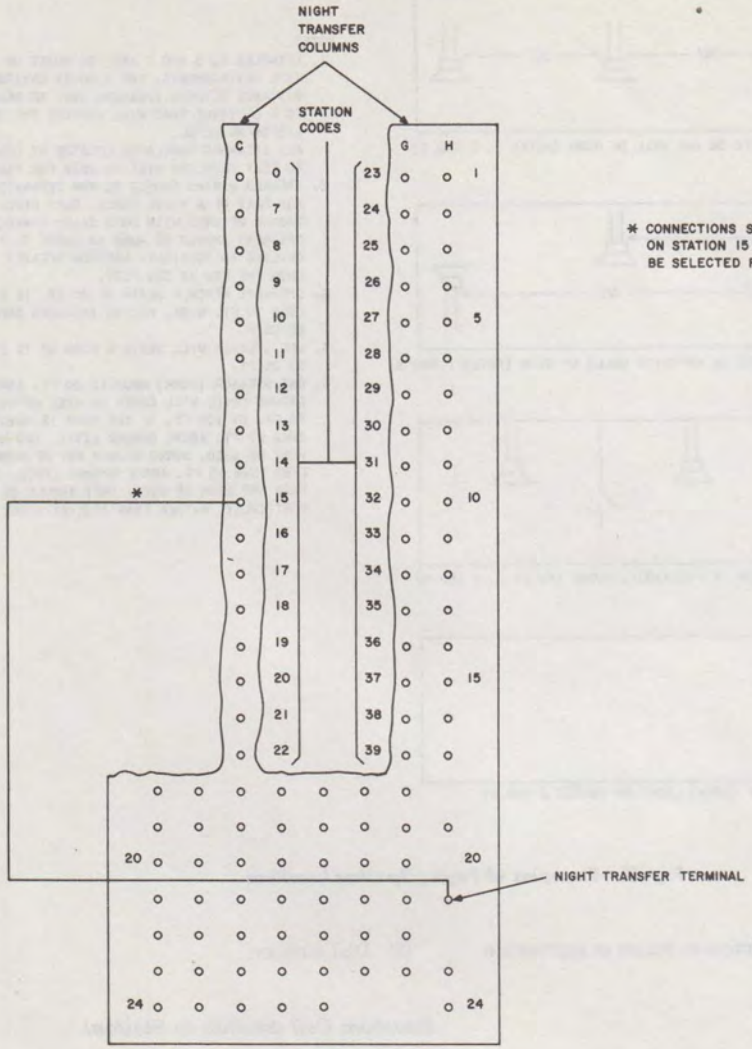


Fig. 29—Connections for Night Transfer

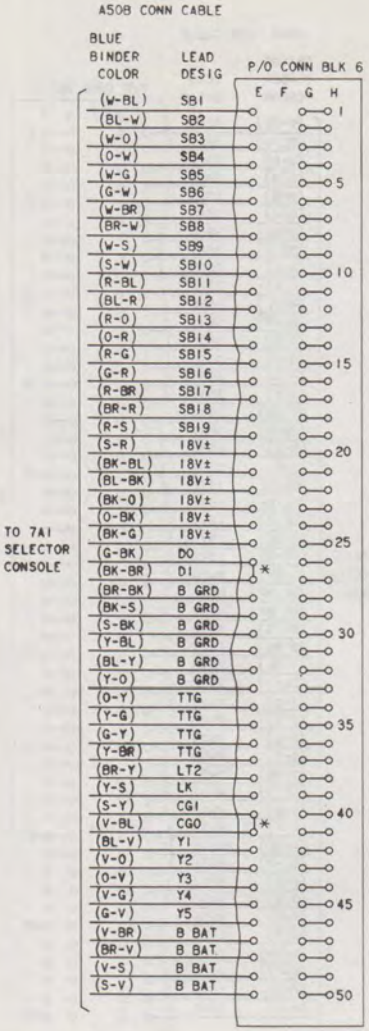
(3) Dial selected station—tone burst signals called station.

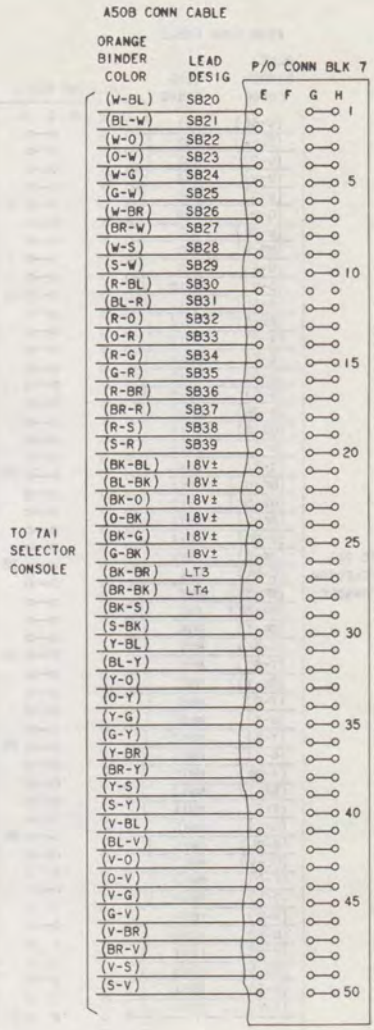
(4) Calling station makes announcement to called party. When called party picks up, intercom lamp will be steady.

Intercom Call (Attendant Station Equipped with Station Busy Console with DSS)

5.06 To make an intercom call:

(1) Lift handset.





* FACTORY PROVIDED STRAPS MUST BE REMOVED WHEN CONSOLE IS CONNECTED. IF CONSOLE IS REMOVED, THE STRAPS MUST BE REPLACED.

Fig. 30—Connections for 7A1 Selector Console (Station Busy Console with DSS)

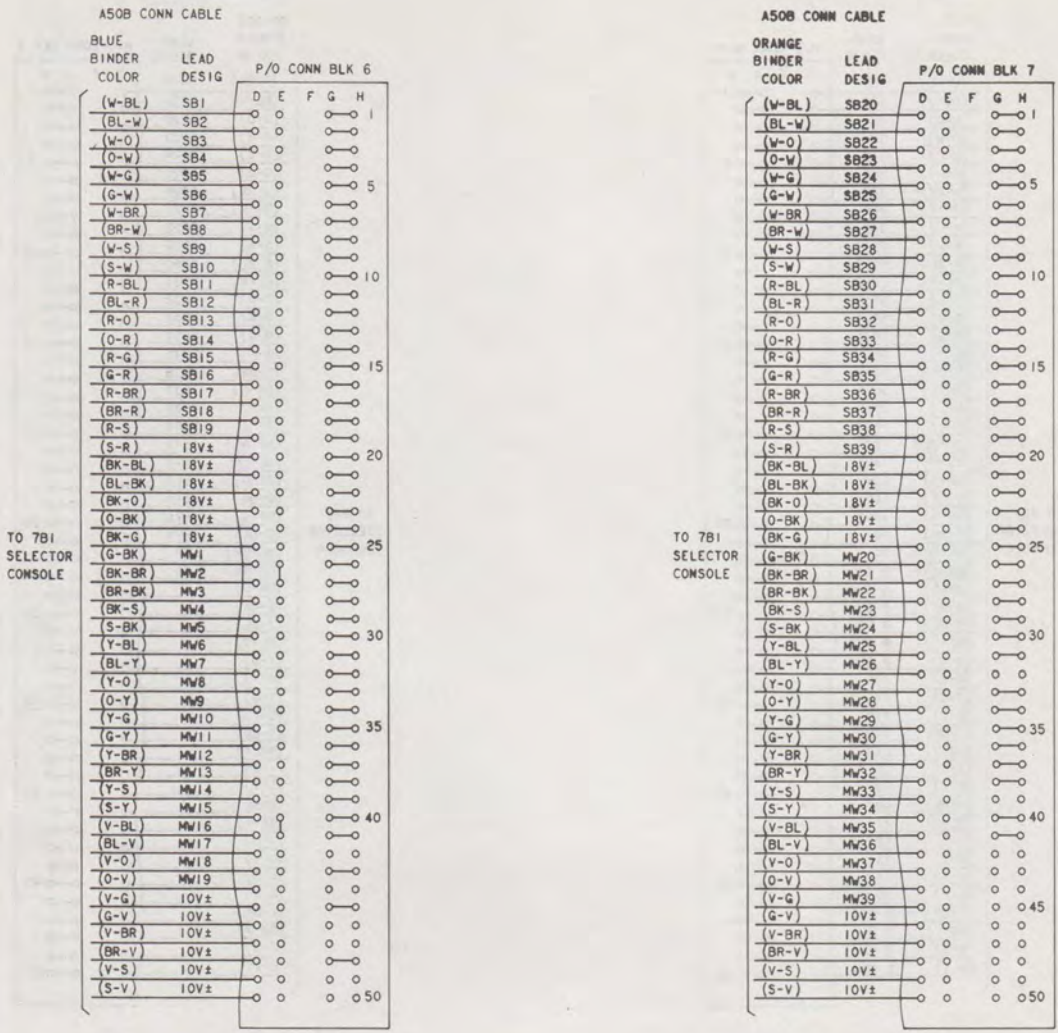


Fig. 31—Connections for 7B1 Selector Console (Station Busy Console with Message Waiting)

TABLE H

3B SPEAKERPHONE CONNECTIONS

CONNECT LEADS FROM				LEAD DESIG	CORD COLORS			CONNECT LEADS TO 55B CONTROL UNIT TERM. ‡
TEL SET TERM.	TRMTR TERM.	SPEAKER TERM.	TRNSF TERM.		DIOR	T7A	R2FK	
24				P4*	W-S			13
				IR†				6
30				P3*	S-W			4
				IT†				15
25† / RR§*				T1	W-BL			1
6				R1	BL-W			10
29				LK	W-BR			35
8				AG	BR-W			11
10				A1	W-G			2
19¶					O-W			32
**					W-O			23
	8			LK		BK-O		35
	7			F1		G-Y		17
	5			S		O-BK		18
	6			A1		Y-O		19
	3			M2		BK-S		16
	2			P1		BL-R		8
	1			M1		S-BK		7
		††		SP2			G	20
		††		SP1			R	29§§
			‡‡	TF1				27
			‡‡	TF2				36

* For rotary dial tel set.
† For TOUCH-TONE tel set.
‡ Strap terminals 4 and 5 on control unit when used with TOUCH-TONE tel sets.
§ Located on network.
¶ Also remove W-S lead from tel set amplifier terminal 1 and connect it to terminal 19.
** Connect W-O lead to terminal 1 on tel set amplifier.
†† Speaker terminals are not designated.
‡‡ Use inside wire.
§§ Connect lead to terminal 30 if a reduction in volume is desired.

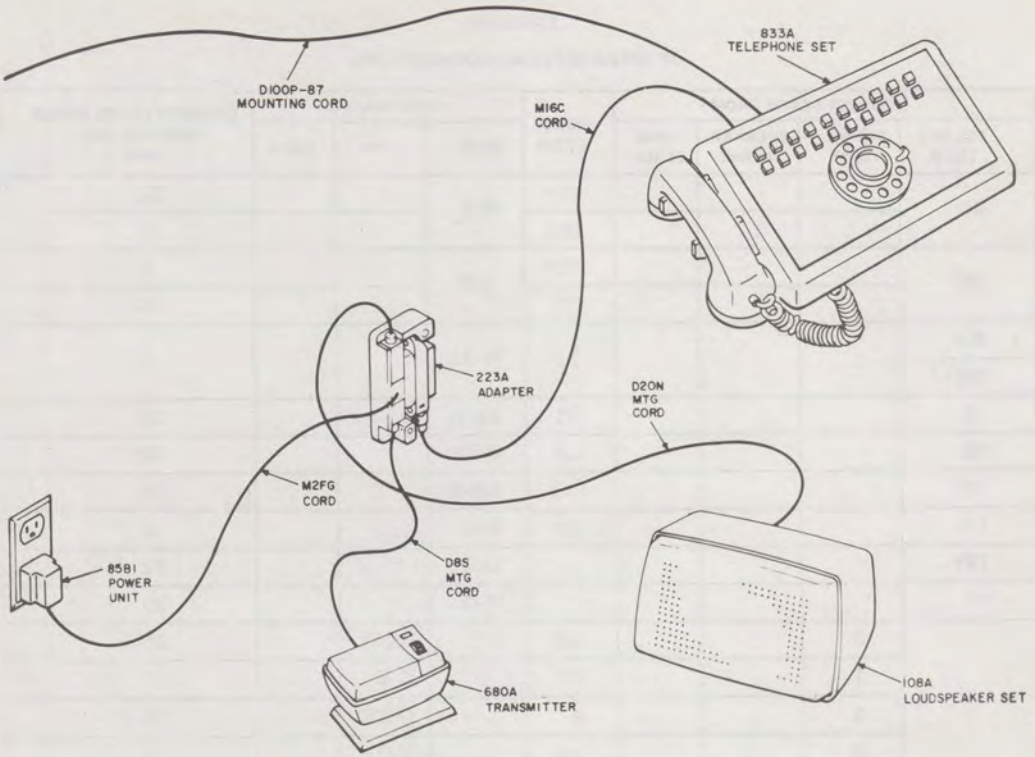


Fig. 32—4A Speakerphone Arrangement

(2) Select idle intercom path and depress associated button.

(3) Momentarily depress button on DSS field corresponding to desired station—tone burst signals called station.

(4) Attendant may now make announcement to called party.

5.07 If called party does not answer and you wish to reach him at another station, proceed as follows:

(1) Momentarily depress RECALL button on DSS console and dial tone will be returned.

(2) Momentarily depress button on DSS field corresponding to desired station—tone burst signals called station.

(3) Attendant may now make announcement to called party.

Note: The selector may be repeatedly recalled (without losing the seized intercom path) by repeatedly depressing the RECALL button and the DSS button. If intercom call is answered at any point, you must hang up and start over.

Intercom Call (Attendant Station Equipped with Station Busy Console with Message Waiting)

5.08 To signal an intercom station that there is a message waiting at the attendant, the

TABLE I

4A SPEAKERPHONE CONNECTIONS

M16C CORD		TEL SET LEAD	REMOVE FROM AMPLIFIER TERMINAL	CONNECT TO	
LEAD DESIG	LEAD COLOR			TEL SET TERMINAL	AMPLIFIER TERMINAL
A1	W-BR			10	
AG	W-O			8	
R1	BL-W			6	
T1	W-BL			25*	
				RR† (on network)	
IR*	G-W			24	
P4†					
IT*	W-G			30	
P3†					
LK	O-W			29	
		W-S	1	19	
	S-W			19	
	BL-R				1

* TOUCH-TONE tel sets.

† Rotary tel sets.

attendant depresses the MW button associated with the desired station. The button will lock down in a partially depressed state causing the lamp under the HOLD button of the called station to light (steady). This steady lamp alerts the station that he has a message waiting and to call the attendant. When the station calls the attendant, the attendant then depresses the associated MW button to release it.

MULTILINE CO/PBX CONFERENCING

5.09 To conference CO/PBX lines, depress CO/PBX line buttons of the lines to be conferenced.

Note: Transmission losses will be encountered on conferenced lines.

5.10 All lines that are conferenced together may be put on hold simultaneously by depressing the HOLD button.

5.11 To make a call during a conference:

(1) Depress HOLD button—all buttons restored.

(2) Select an idle line.

(3) Dial call.

(4) If it is desired to add this call to the conference while holding this CO/PBX line button down, depress the conferenced CO/PBX line buttons.

(5) To re-enter conference again after call is completed, simultaneously depress conferenced CO/PBX buttons again.

5.12 If it is desired to add another call to the conference while holding the conferenced CO/PBX line buttons down, depress button of CO/PBX line to be added.

5.13 To prevent dropping one of the participants when setting up a conference, ensure that the conferenced CO/PBX line buttons are held down when adding another station.

Intercom and CO/PBX lines cannot be conferenced together.

PAGING

Paging (From Any Station)

5.14 To use paging feature:

(1) Lift handset.

(2) Select idle intercom path and depress associated button.

(3) Dial digit (4, 5, or 6) associated with the zone to be activated—tone burst will sound over paging system loudspeakers in the zone selected.

Note: Background music is automatically cut off during paging.

(4) Speak into handset transmitter to make announcement.

(5) Replace handset.

Paging (Attendant Station Equipped with Station Busy Console with DSS)

5.15 To use paging feature:

(1) Lift handset.

(2) Select idle intercom path and depress associated button.

(3) Depress button (4, 5, or 6) associated with the zone you wish to activate—tone burst will sound over paging system loudspeakers in the zones selected.

(4) Speak into handset transmitter to make announcement.

(5) Replace handset.

INTERCOM PRESET CONFERENCE

Note: Any intercom station may originate preset conference but only those stations wired for preset conference will be alerted.

5.16 To use preset conference:

(1) Lift handset.

(2) Select idle intercom path and depress associated button.

(3) Dial "39"—tone burst signals all stations wired for preset conference.

Note: Attendant may use DSS code "39" if equipped with DSS console.

(4) Announcement is made to all preset conference stations simultaneously.

PRIVACY RELEASE

5.17 To bring a locked out station into a conversation, depress the privacy release button. The line will go on hold with the lamp winking. The button must be held depressed until the locked out party bridges onto the line at which time the lamp goes steady.

5.18 To add a station equipped with a privacy (lockout) circuit to a bridged conference, all of the sets already connected must depress their privacy release buttons simultaneously. Line lamps will not wink until all buttons are depressed at conferenced stations.

NIGHT TRANSFER

5.19 To transfer ringing from attendant station to a designated secondary station, depress night transfer button (locking it down). To transfer ringing back to attendant station, depress night transfer button again which releases it. While the button is depressed, the lamp under it is lit (steady).

SPEAKERPHONE (3B and 4A)

Note: Speakerphone does not prevent normal use of the telephone set for originating, receiving, or transferring calls.

5.20 To originate a call using speakerphone:

(1) Depress CO/PBX key associated with an idle line.

(2) Momentarily depress transmitter ON button. ON lamp lights and dial tone is heard through the loudspeaker.

(3) Dial number in normal manner.

(4) When called party answers, transmitter and loudspeaker are used to carry on the conversation. Adjust volume level as desired.

5.21 To answer an incoming call using speakerphone:

(1) When audible tone signals an incoming call, depress CO/PBX key associated with flashing lamp.

(2) Momentarily depress transmitter ON button. Audible signal is silenced and the speakerphone is connected to the line.

(3) Answer call using transmitter and loudspeaker to carry on conversation.

5.22 To disable transmitter when it is desired not to transmit conversation from the surrounding area to the distant station.

(1) Depress transmitter ON button during entire period transmitter is to be disabled.

Note: With transmitter disabled, conversation will not be transmitted to the distant station; however, the distant party may be heard over the loudspeaker.

(2) Release transmitter ON button and system is restored to hands-free operation.

5.23 To transfer from handset to speakerphone operation:

(1) Put line on hold.

(2) Hang up handset.

(3) Turn speakerphone on.

(4) Depress line button.

5.24 To transfer from speakerphone to handset operation, lift handset during speakerphone operation to automatically transfer to handset operation. When it is necessary to transfer back to speakerphone, refer to 5.23 to prevent disconnect.

5.25 To terminate a call on speakerphone, momentarily depress transmitter OFF button.

Note: Restore any depressed line buttons to eliminate unintentional bridging.

RECALL

5.26 RECALL provides the same function as switchhook flash without restoring the line buttons.