REPLACING PAGE ADDENDUM
Filing Instructions:
1. REMOVE FROM THE SECTION THE PAGES NUMBERED THE SAME AS THOSE ATTACHED TO THIS PINK SHEET.
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MJ AND MK MOBILE RADIO TELEPHONE SYSTEMS

PERFORMANCE REQUIREMENTS

LARGE SYSTEM CONTROL TERMINAL

GENERAL EQUIPMENT REQUIREMENTS

RADIO SYSTEMS

1. GENERAL

1.001 This addendum supplements Section 806-157-181, Issue 2. The attached pages must be inserted in the section in accordance with the filing instructions above.

1.002 This addendum is issued to revise paragraphs 4.06 through 4.11 to change the setting of the 3A noise measuring set from 15 kHz to 3 kHz flat weighting.

Bell Telephone Laboratories, Incorporated

Dept 3241

Attached:

Page 3 dated December, 1972 revised
Page 4 dated December, 1972 revised

MJ AND MK MOBILE RADIO TELEPHONE SYSTEMS
PERFORMANCE REQUIREMENTS
LARGE SYSTEM CONTROL TERMINAL
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CONTENTS PAGE

1. GENERAL

1.01 This section covers the performance requirements which the MJ ▶and MK◀ Mobile Radio Telephone System Control Terminal ***(Large System)*** shall meet before turnover to the telephone company. For a description of system operation, refer to Section 806-157-150.

1.02 This section is reissued to make minor corrections and to change the title to indicate that both the MJ and MK Mobile Radio Telephone Systems are covered by the performance requirements.

1.03 It is intended that this section shall apply to all initial installations and when additions are made to existing control terminals.

1.04 Reference shall be made to Section 800-630-180 covering general requirements, definitions, and additional information necessary for the proper application of the requirements.

2. TEST EQUIPMENT

2.01 All requirements are based on the use of the following test equipment, or equivalent.

1—Mobile Unit Simulator (See Fig. 1 and 2)

1—DC Power Supply (capable of supplying 12 volts at 1/2 ampere regulated)

1—Western Electric Pulse Checking Test Set, J94723A

1—Western Electric 3A Pulse Generating Test Set, J94732A (with J94732B Power Supply)

1—Multimeter, KS-14510, L1

1—Western Electric 3A Noise Measuring Set

1—72A Frequency Meter or Audio Frequency Counter (accuracy: 0.01%; input sensitivity: 0.2 volt minimum; input impedance: 100,000 ohms minimum)

1—Circuit Board Extender

1—Western Electric 35F (or ITE 4040) DC Adjusting Set

1—High-Impedance Headset or Receiver (impedance: > 1500 ohms)

1—310A Dummy Plug

3. PREPARATION

3.01 All wiring runs connected by the installer shall be tested for continuity and absence of trouble grounds.

Note: It is assumed that all connections have been made to the line switch bays and to the transmission, signaling, and test access (TSTA) bays. This includes the necessary cross-connections in the line circuit bays, if the number assignments are known.

3.02 A visual inspection shall be made to ensure that the following conditions are met:

(a) Mercury relays, printed circuit boards, and plug-in capacitors are properly inserted and seated in their sockets. Refer to Fig. 3 through 10 and the appropriate SDs in order to locate the plug-in components.

(b) No broken leads, shorts, etc, exist.

(c) All relays operate with proper motion of armature and springs.

3.03 Prior to any of the following tests, the central office battery supply (−45 to −52 volts) should be checked. This may be measured at the frame battery posts of each equipped bay and between terminals 1A and 1N (GRD) on the channel shelf terminal block(s) located in each TSTA bay.

3.04 Using the 35F dc adjusting set, check the current adjustment of all relays on one fully equipped relay bar selected at random. (Refer to the circuit requirement section in the appropriate SD.)

Note 1: If a relay is normally operated or pulsing, remove the applicable fuse(s) during the testing of that relay.

Note 2: To facilitate testing, remove the relay bar from the bay and place it on a hanger which is provided.

Note 3: If more than one relay requires adjustment, repeat the test on two other fully equipped relay bars randomly selected. If more than one relay requires adjustment on the second two relay bars chosen, report the findings to the Western Electric Company Supplies Inspection Organization.

Requirement: All relays shall meet the circuit requirements contained in the SD.

3.05 Insert the following resistors in the TSTA pad field.

(a) Insert an 89-type resistor having 0 loss in the SONAD 1C pad socket of each equipped channel.

(b) Insert an 89-type resistor having ▶12 dB◀ of loss in the VOGAD 1C pad socket of each equipped channel.

(c) Insert an 89-type resistor having 8 dB of loss in the REC 1C pad socket of each equipped receiver.

Note: The values given in 3.05 (b) and (c) are used only for test purposes. The proper working values are determined during line-up of the entire system. Refer to Section 405-200-501 (MJ System Line-Up) ▶or 405-200-503 (MK System Line-Up).◀

4. CIRCUIT OPERATION TESTS AND ADJUSTMENTS

A. Transmit Line Terminating Unit

4.01 The transmit line terminating unit (TLTU) connections of transformer T101 between the terminal and the line facilities leading to the remote transmitter are strapped as follows to match the line impedance.

LINE IMPEDANCE	STRAP (T101)
<500 ohms	A to D; E to J; W to U, Y, Z; and V to X
500 to 900 ohms	A to C; E to F; and W to Z
>900 ohms	A to B; E to H; W to U; and V to Z

4.02 Current-limiting resistors R101 and R103, which are connected in the primary leads of T101, must be selected at the time of installation and must be of equal value. The value of the resistors must be such that

R101 + R103 + *R*(loop) = 3500 ohms at 77° F

where ***R*** (loop) is the total dc resistance of the connecting loop to the remote transmitter. Minimum values of these resistors should not be less than 50 ohms. Use 145- or 221-type 1-percent resistors. Refer to SD-2R000-01-J5, SD-2R000-01-J13, and SD-2R000-01-J14.

B. VOGAD Circuit

4.03 Locate the two VOGAD circuit boards (CPS2A and CPS2B) on the channel shelf. Set the TEST-BAL-SPEECH switch on the VOGAD control circuit board (CPS2A) to the SPEECH position.

C. Receiver Selector Circuit

4.04 Connect a dc voltmeter to read the negative voltage existing between test point TP102 on the threshold control circuit board (CPS6B) and ground (TP101).

Requirement: The voltmeter shall read 5.4 ±0.2 volts.

Note: If the requirement is not met, refer to Chart 6 of Section 405-210-503 (Receive Line Terminating Unit and Receiver Selector—Test Procedures).

D. Receive Line Terminating Unit

4.05 Connections on transformer T101 for various line impedances are shown in the following table.

LINE IMPEDANCE	STRAP (T101)
<500 ohms	A to D; E to J; W to X, Y, Z; and U to V
500 to 900 ohms	A to C; E to H; and W to Y
>900 ohms	A to B; E to F; W to Z; and U to Y

E. Tone Generator Circuit

4.06 Connect a frequency counter and a 3A noise measuring set adjusted for ◗3 kHz◖ flat weighting (◗3 KC◖ FLAT WTG) to the LINE LIST jack on the TSTA channel jack, key, and lamp field. Set the FUNCTION switch on the 3A noise measuring set to the BRDG position. Operate the CHAN O/SVC key.

Note 1: Use the multiple in the TSTA jack field as a tie point for the two meters.

Note 2: If connections to the lines leading to the remote transmitter have ***not*** been made, the 3A noise measuring set should be plugged into the SW OUT jack and the FUNCTION switch should be set to the NM 600 position.

4.07 Operate the 600 ~ TONE key and measure the level and frequency. If required, adjust OUTPUT LEVEL control R111 for an indication of 86 dBrn ◗3 kHz◖ (−4 dBm). The frequency should be 600 ±4 Hz. Return the 600 ~ TONE key to normal (off position).

Note: If the tone generator requirements indicated in 4.07 through 4.10 cannot be met, refer to Section 405-210-501 (Tone Generator Tests).

4.08 Operate the 1500 ~ TONE key. If required, adjust OUTPUT LEVEL control R113 for

an indication of 86 dBrn ◗3 kHz◖ (−4 dBm). The frequency should be 1500 ±10 Hz. Return the 1500 ~TONE key to normal.

4.09 Operate the 1800 ~TONE key. If required, adjust OUTPUT LEVEL control R115 for an indication of 83 dBrn ◗3 kHz◖ (−7 dBm). The frequency should be 1800 ±5 Hz. Return the 1800 ~ TONE key to normal.

4.10 Operate the 2000 ~TONE key. If required, adjust OUTPUT LEVEL control R117 for an indication of 83 dBrn ◗3 kHz◖ (−7 dBm). The frequency should be 2000 ±5 Hz. Return the 2000 ~TONE key to normal.

4.11 Patch a 600-ohm oscillator or milliwatt reference generator through a 600-ohm attenuator to the VOG IN jack. Adjust the 600-ohm oscillator or milliwatt reference generator for a 1000-Hz tone output of −32 dBm. Measure the level at the TLTU jacks using a 3A noise measuring set adjusted for ◗3 kHz◖ flat weighting (◗3 KC◖ FLAT WTG). The FUNCTION switch on the 3A noise measuring set should be set to the NM 600 position.

Requirement: The meter on the 3A noise measuring set shall read 77 dBrn ◗3 kHz◖ (−13 dBm) ±3 dB. If this requirement is not met, refer to Section 405-210-505 (VOGAD Alignment).

F. Sender Circuit

4.12 Interdigital timing of 310 ms nominal is required from each sender for service calls. This requires that terminal TS(G17) be strapped to terminal TS(G16).

4.13 Interdigital timing of 210 ms nominal is required from each sender for test calls. This requires that terminal TS(G47) be strapped to terminal TS(G16).

4.14 The sender outpulses seven digits for selectively signaling a mobile unit. The first three of these digits are always the same and represent the home NPA code. Programming the proper NPA code into the sender requires that the A, B, and C terminals be strapped to their associated 0, 1, 2, 4, or 7 terminals as shown in Table A.

4.15 Connect the test set from jack BAT-G to jack BATT on the stile strip. Connect a J94723A pulse checking test set into the sender PULSE TEST jack (SDR1 or SDR2), located on the test panel on the switch control bay, to check the outpulsing. The speed shall be adjusted to 10 pps by rotating potentiometer VR-1. The percent break shall be adjusted to 50 percent using potentiometer VR-2.

4.16 With the pulse checking test set connected to the sender PULSE TEST jack, the outpulsing for the test should be checked with the TS relay blocked operated. The speed shall be adjusted to 20 pps using potentiometer VR-3. The percent break shall be adjusted to 50 percent using potentiometer VR-4.

4.17 Release the TS relay. Recheck the 10-pps and 50-percent break output, and readjust VR-1 and VR-2 if necessary.

G. Register Circuit

4.18 The percent break and the ability of the register to receive pulses at various speeds should be checked in the following manner. Connect a 3A pulse generating test set (J94732A) into the register EXT PULSE jack (REG 1 or REG 2) on the test panel. Adjust the test set to pulse at the speed and corresponding percent break points tabulated below, using an interdigit time of 120 ms. Set the LOOP switch on the test set to the CLOSED position.

PULSING SPEED (PPS)	PERCENT BREAK
13.5	76
20	50
31	44

With the test panel keys set to monitor the register under test, pulse the number 000-0000 into the register.

Requirement: The number pulsed should be correctly registered by the test panel lamps in a 2-out-of-5 code.

Note 1: Use the black scale on the pulse generating test set to read percent break.

TABLE A

STRAPPING ARRANGEMENTS FOR SENDER

VALUE OF DIGIT	NPA DIGIT		
	A	B	C
	STRAP TERMINAL G12 TO TERMINALS	STRAP TERMINAL G22 TO TERMINALS	STRAP TERMINAL G24 TO TERMINALS
1	G1 and G11	G3 and G13	G5 and G15
2	G1 and G21	G3 and G23	G5 and G25
3	G11 and G21	G13 and G23	G15 and G25
4	G1 and G31	G3 and G33	G5 and G35
5	G11 and G31	G13 and G33	G15 and G35
6	G21 and G31	G23 and G33	G25 and G35
7	G1 and G41	G3 and G43	G5 and G45
8	G11 and G41	G13 and G43	G15 and G45
9	G21 and G41	G23 and G43	G25 and G45
0	G31 and G41	G33 and G43	G35 and G45

Note 2: This test should be performed before strapping diodes as described in 4.20.

Note 3: If eight digits are pulsed into the register, a trouble display will be registered on the test panel and the ED lamp will light.

4.19 Repeat the test described in 4.18, using the number 111-1111.

4.20 If the roamer line circuit option for free local calling by roamer mobiles is provided, the output terminals of storage tanks A, B, and C should be strapped to the code bus terminals with 1N2070 diodes as described in Table B. (Strap all unassigned code buses to ground.) Refer to Fig. 11 for an example of the strapping arrangements using the area code 312.

H. Base Station Identifier Circuit

4.21 Determine that the code wheel, notched with the station call sign in International Morse Code, is affixed to the identifer motor shaft.

4.22 Connect a high-impedance headset or receiver into the LINE LIST jack of channel 1 on the TSTA channel jack, key, and lamp field. Check that the channel is not busy.

4.23 Manually operate relay ST1 momentarily.

Requirement: An audible tone (1800 Hz) should be outpulsed under control of the code wheel switch.

4.24 Repeat Steps 4.22 and 4.23 for each of the equipped channels, operating the associated ST relay.

4.25 Disconnect and remove the headset or receiver.

I. Channel Selector Circuit

4.26 On the TSTA channel jack, key, and lamp field, operate the TST A key; then operate the IDLE CHANNEL ADVANCE key (LK1 through LK8) for the channel which is marked idle by the illuminated link idle lamp (LK1 IDLE through LK8 IDLE). Observe the link idle lamps.

TABLE B

AREA CODE DIGIT ASSIGNED			STRAP STORAGE TANK DIGIT OUTPUT TERMINAL					
			A / B / C	0	1	2	4	7
1st Digit (A)	2nd Digit (B)	3rd Digit (C)						
1	1	1				X	X	X
2	2	2			X		X	X
3	3	3		X			X	X
4	4	4			X	X		X
5	5	5		X		X		X
6	6	6		X	X			X
7	7	7			X	X	X	
8	8	8		X		X	X	
9	9	9		X	X		X	
0	0	0		X	X	X		

Requirement: The link idle lamp next in sequence (in the forward direction) shall light.

4.27 Release the TST A key and operate the TST B key. Repeat Step 4.26.

Requirement: The link idle lamp next in sequence (in the reverse direction) shall light.

Release the TST B key.

4.28 Operate the TST PULSE key ***twice.***

Requirement: Lamps A and B change conditions; ie, if lamp A was lighted before operation of the TST PULSE key, it will extinguish and lamp B will light.

Note: If the requirements of 4.26, 4.27, and 4.28 are not met, refer to Section 405-211-513 (Channel Selector Tests).

J. Alarm Circuit

4.29 Refer to Note 401 of SD-2R014-01 for the proper strapping in the alarm circuit.

K. Test Panel Tests

4.30 To make the following tests, the cross-connections in the line circuit bays must be made; or alternatively, if number assignments do not exist, a temporary cross-connection using jumpers can be made.

4.31 Using the test panel which is located on the switch control bay, perform the following tests. The equipped circuits shall meet the requirements specified below.

Note: To obtain the procedures for performing the tests, refer to Section 405-211-517 (Common Control Circuit Tests and Service-Trouble Indications).

(a) ***Cross-Connection Verification Test:*** This test shall be performed for each assigned 4-digit number.

Requirement: All six MARKER TST PROG lamps (ie, LK, SEC, SW, SM, U/L, and HM) shall light.

Note: If duplicate common control circuits are equipped, the complete test should be repeated, using marker No. 2 (MKR2) and line chain and allotter No. 2 (LCA2).

(b) ***Incoming Call Marker Test:*** This test shall be performed using any ten unassigned numbers picked at random.

Requirement: All six MARKER TST PROG lamps (ie, LK, SEC, SW, SM, U/L, and HM) shall light.

Note: If duplicate common control circuits are equipped, the complete test should be repeated, using MKR2 and LCA2.

(c) ***Outgoing Loop-Around Test:*** This test shall be performed for each assigned 4-digit number.

Requirement: The four digits in the marker display should match the number set on the TH-H-T-U switches. The A, B, and C lamps, which light during the outpulsing, should correspond to the local NPA code. The CK2 lamp in the marker display shall light.

Note: If duplicate common control circuits are equipped, the complete test should be repeated, using SDR2, MKR2, and REG2.

L. Test Calls

Line-to-Mobile Unit Simulator

4.32 The following tests are designed to establish a talking path through each equipped MJ ▶or MK◀ line circuit to the mobile unit simulator, which is programmed to receive the test call.

4.33 In order to perform these test calls it is required that the line circuits be cross-connected into the central office and that the necessary cross-connections on the line circuit bays are made. Alternatively, if the line assignments are not known, these tests should be made by connecting jumpers between a test line(s) and the line circuit under test and by making a temporary cross-connection (assigning a number at random) on the line circuit bay.

(a) Busy-out all channels that are not involved in the test by operating the respective CHAN O/SVC keys on the TSTA channel jack, key, and lamp field.

(b) Set up the mobile unit simulator as shown in Fig. 1. Connect the simulator to one of the channels in the control terminal by connecting the AUDIO IN terminals on the adapter to the TLTU jack on the TSTA channel jack, key, and lamp field. Connect the SIG/SPEECH OUT jacks on the adapter to the RECEIVER LTU jack on the TSTA channel jack, key, and lamp field.

(c) Program the simulator for a number corresponding to the line under test. Refer to Part 5 of this section for instructions on programming the mobile unit simulator. Apply 12 volts dc to the adapter from an external power supply.

(d) Using an external land phone, originate a land-to-mobile call. Check that ringback is returned, that the mobile unit simulator rings, that there is continuity in the talking path, and that proper disconnect occurs upon going on-hook.

(e) Operate the CHAN O/SVC key of the channel under test. Originate a land-to-mobile call to the same line circuit as in 4.33(d). Check that reorder tone or a recorded announcement is returned. Release the CHAN O/SVC key to the normal position.

(f) Temporarily remove the 12-volt dc power supply from the mobile unit simulator. Originate a land-to-mobile call to the same line circuit as in 4.33(d). Check that ringback is returned and that within approximately 3 seconds after the end of outpulsing the channel is free as indicated by the link idle lamp (LK1 IDLE through LK8 IDLE). Reconnect the 12-volt dc power supply to the mobile unit simulator.

(g) Originate a mobile-to-land call from the control unit on the mobile unit simulator. Dial a few digits after receiving dial tone. Check that dial tone can be broken.

(h) Using a formula where N equals the number of channels equipped, repeat 4.33(c) through (h) for $1/N$ of the total number of lines equipped.

Note: It will be necessary to reprogram the mobile unit simulator after each line test.

(j) Repeat 4.33(a) through (h) for each equipped channel. This means that on each equipped channel $1/N$ of the total number of lines will be tested. Thus, at the completion, each line circuit will have been tested.

(k) If the system is equipped with duplicate switching, originate a land-to-mobile call, noting which common control equipment is used (marker, sender, and line chain and allotter). Repeat the procedure and note that the alternate common control equipment is used. Also, originate a mobile-to-land call and note which register is used. Repeat the procedure and note that the alternate register is used.

Roamer Line Circuit

4.34 The roamer line circuit feature contained in each link circuit (if local dial access by roamers is equipped) shall be tested for its restrictive service feature.

(a) Connect the mobile unit simulator to one of the channels according to 4.33(b).

(b) Program the simulator for a foreign NPA code representing a roaming mobile. (See Part 5 of this section for instructions on programming the mobile unit simulator.)

(c) Originate a mobile-to-land call from the mobile unit simulator by dialing a permitted local number. Check for continuity of the talking path and for proper release of the connection.

(d) Originate a mobile-to-land call by dialing a nonpermitted number. Check that the call is diverted to the mobile service operator for completion.

(e) Repeat 4.34(a) through (d) for each equipped channel.

TOTP-to-Mobile Unit Simulator

4.35 For the following tests, set the TLK RAD/MON/TLK EXT switch on the technical operator test panel (TOTP) on the TSTA bay to the TLK RAD position and the CH-1/CH-2/CH-3 switch to the appropriate channel position. Set the MANUAL switch on the TOTP to the normal (horizontal) position.

4.36 On each equipped channel, one of each of the following types of calls should be made between the TOTP and the mobile unit simulator. Check the continuity of the talking path and the supervisory disconnect features.

(a) Land-to-mobile call—home (H) mode ▶(MJ and MK)◀.

(b) Land-to-mobile call—manual (M) mode ▶(MJ only).◀

(c) Mobile-to-land call—manual (M) mode ▶(MJ only)◀.

(d) Mobile-to-land call—home (H) mode ▶(MJ and MK).◀

Note: During mobile identification (ANI), momentarily insert a dummy plug into the SEL OUT jack. The call should be diverted to the mobile service operator for completion.

Switchboard-to-Mobile Unit Simulator

4.37 On each equipped channel, one of each of the following types of calls should be made between the mobile operator's switchboard and the mobile unit simulator. The continuity of the talking path and the supervisory, dialing, and disconnect features should be checked.

(a) Switchboard-to-mobile call—home (H) mode ▶(MJ and MK)◀.

(b) Switchboard-to-mobile call—manual (M) mode ▶(MJ only)◀.

(c) Mobile-to-switchboard call—manual (M) mode ▶(MJ only)◀.

M. Miscellaneous Tests

Alarm Circuit Tests

4.38 The following tests should be made to determine that the alarm circuit is working properly.

(a) Check that all REC REJ keys are normal (horizontal position).

(b) Insert a 310A dummy plug into one of the equipped RECEIVER LTU jacks in the TSTA

channel jack, key, and lamp field. Check that (1) the associated RCVR FAIL lamp lights, (2) the MIN alarm lamp on the bay stile strip also lights, and (3) the MIN relay in the alarm circuit operates.

(c) Operate the associated RECEIVER REJ key.

Requirement: The RCVR FAIL and MIN lamps mentioned above should extinguish and the MIN relay should release.

Release the RECEIVER REJ key to the normal position. Remove the dummy plug.

(d) Repeat 4.38(a), (b), and (c) for each equipped RECEIVER LTU jack.

(e) Place the tone generator circuit board (SD-2R000-01, CPS3) on a circuit board extender and insert the combination into the proper slot location on the TSTA channel shelf.

(f) Connect a ground to pin 5.

Requirement: The associated TONE FAIL lamp lights, the MIN alarm lamp on the bay stile strip also lights, and the MIN relay in the alarm circuit operates.

(g) Remove the tone generator circuit board from the circuit board extender. With an ohmmeter, check for continuity between pins 3 and 5.

(h) Remove the circuit board extender and replace the tone generator circuit board into the proper location.

(i) Repeat 4.38(e) through (h) for each equipped tone generator circuit board.

(j) On each equipped bay, verify that the fuse alarm lamp (MAF) on the stile strip is properly connected by momentarily depressing one of the grasshopper fuses so that contact is made with the center conductor.

Requirement: The MAF lamp lights and the MAF relay in the alarm circuit operates.

(k) Momentarily depress each of the four marker circuit grasshopper fuses so that contact is made with the center conductor.

Requirement: The appropriate battery fail lamp (BF) at the test panel lights. If only one marker is equipped, the BF relay in the marker will operate, the MAF relay in the alarm circuit will operate, and a major alarm lamp in the stile strip will light.

(l) On the base station identifier, pull the 117-volt ac plug.

Requirement: A major alarm is indicated on TSTA bay No. 1 and the MAJ relay in the alarm circuit operates.

(m) Manually release the CHAL relay in the channel selector.

Requirement: The MAJ relay in the alarm circuit operates and a major alarm is indicated in TSTA bay No. 1.

(n) Manually operate the ALH relay in the transmitter switching circuit.

Requirement: The MAJ relay in the alarm circuit operates and a major alarm is indicated in TSTA bay No. 1.

Verification of Fusing

4.39 A check should be made to verify all fusing. The test may be limited to checking that the fuses are the correct type, have adequate current-carrying capacity, and are correctly positioned.

Miscellaneous Circuits

4.40 All circuits not covered by specific requirements herein shall be correctly wired and shall operate in accordance with their respective circuit descriptions.

5. SUPPLEMENTARY INFORMATION—PROGRAMMING THE SUPERVISORY UNIT FOR THE MOBILE UNIT SIMULATOR

5.01 Jumper leads and connector pins under the supervisory unit chassis plate on the selector printed circuit board are connected to establish the desired number. (See Fig. 12.)

5.02 The jumper leads are color coded, indicating the digits to which they correspond. (Refer

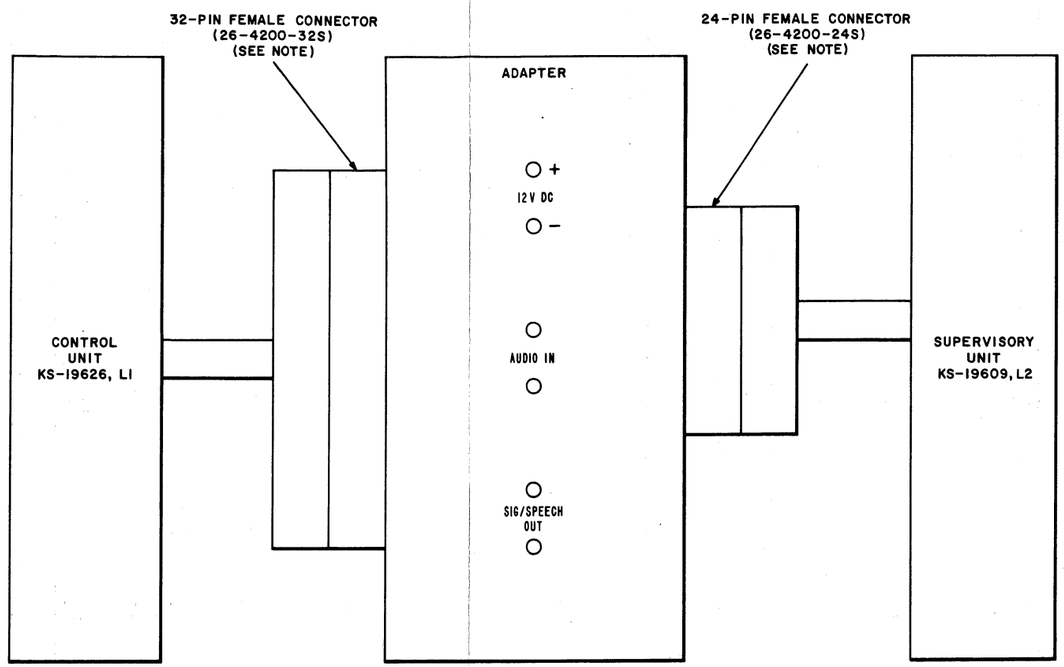
to Table C.) Also, the connector pins are numbered. To set up the proper code, proceed as follows.

(a) ***For Code Numbers Containing All Different Digits:*** Locate the ten connector pins which are mounted along the right-hand edge of the selector circuit board and are numbered 1 through 0. These pins represent the numerical values for the assigned 7-digit calling code. The jumpers at the left represent the numerical order of the digits. Note that the connector pins and jumpers are ***not*** in numerical order. Connect the proper jumper lead for the respective digit to the desired pin terminal.

(b) ***For Code Numbers Containing One or More Similar Digits:*** Connect the first digit jumper lead to the desired connector pin as described in 5.02(a). If the value of another digit of the sequence is the same as the first digit, connect the proper digit jumper to the multiple connector pin located at the base of the first digit jumper lead in the sequence. If yet another digit is identical to these two digits, connect the proper jumper to the multiple connector pin at the base of the previous digit jumper which has the same value. Follow the same pattern if any of the remaining digits are identical.

TABLE C

DIGITS	JUMPER LEAD COLOR
1st	Brown
2nd	Red
3rd	Orange
4th	Yellow
5th	Green
6th	Blue
7th	White



NOTE:
AMPHENOL BLUE RIBBON CONNECTORS.

Fig. 1—Mobile Unit Simulator

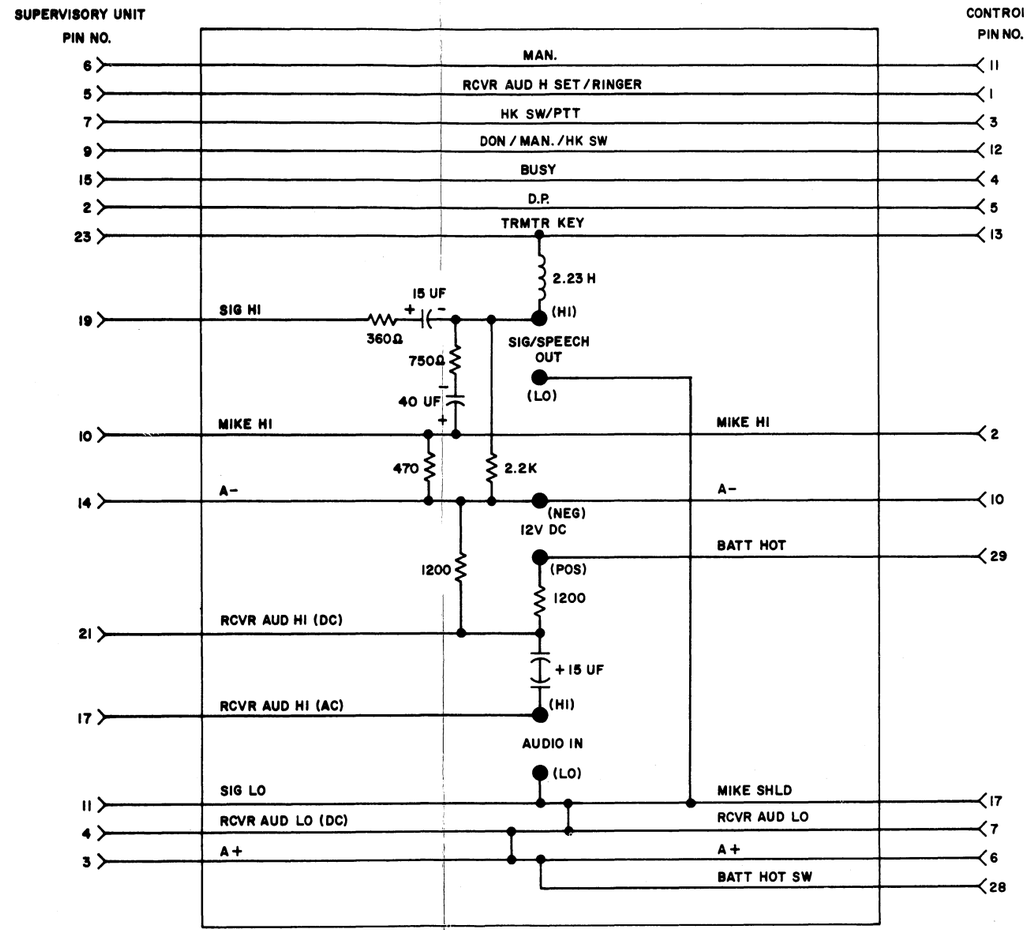
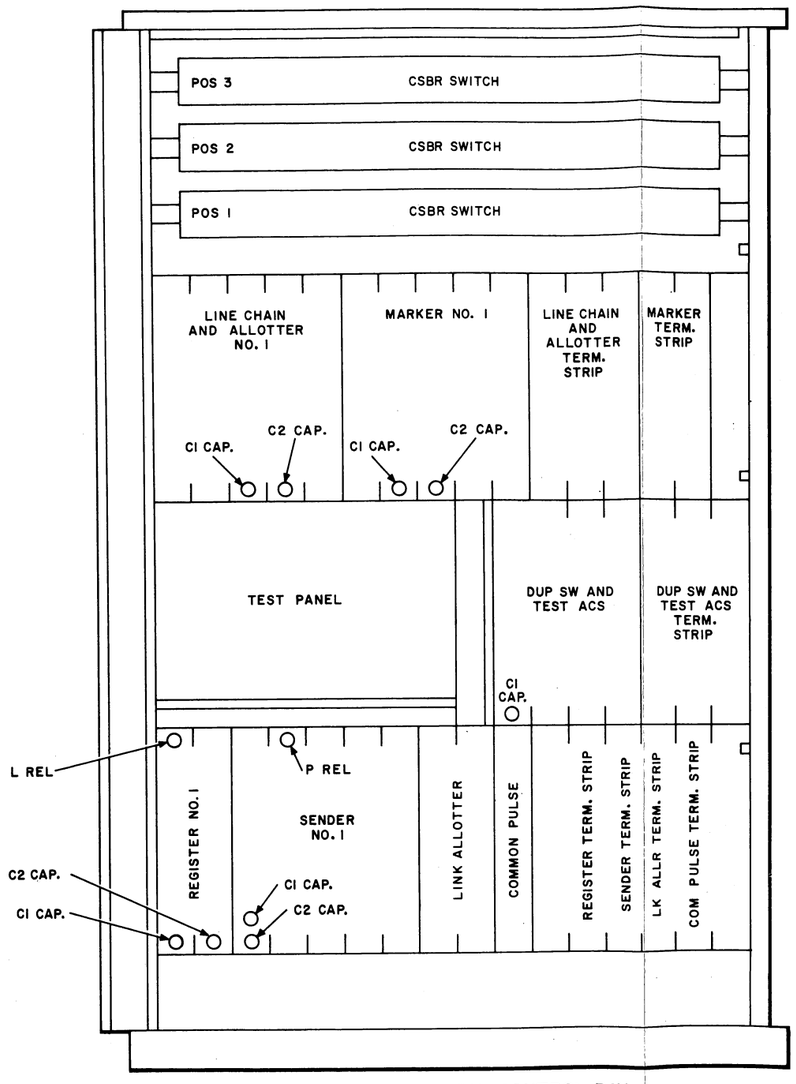
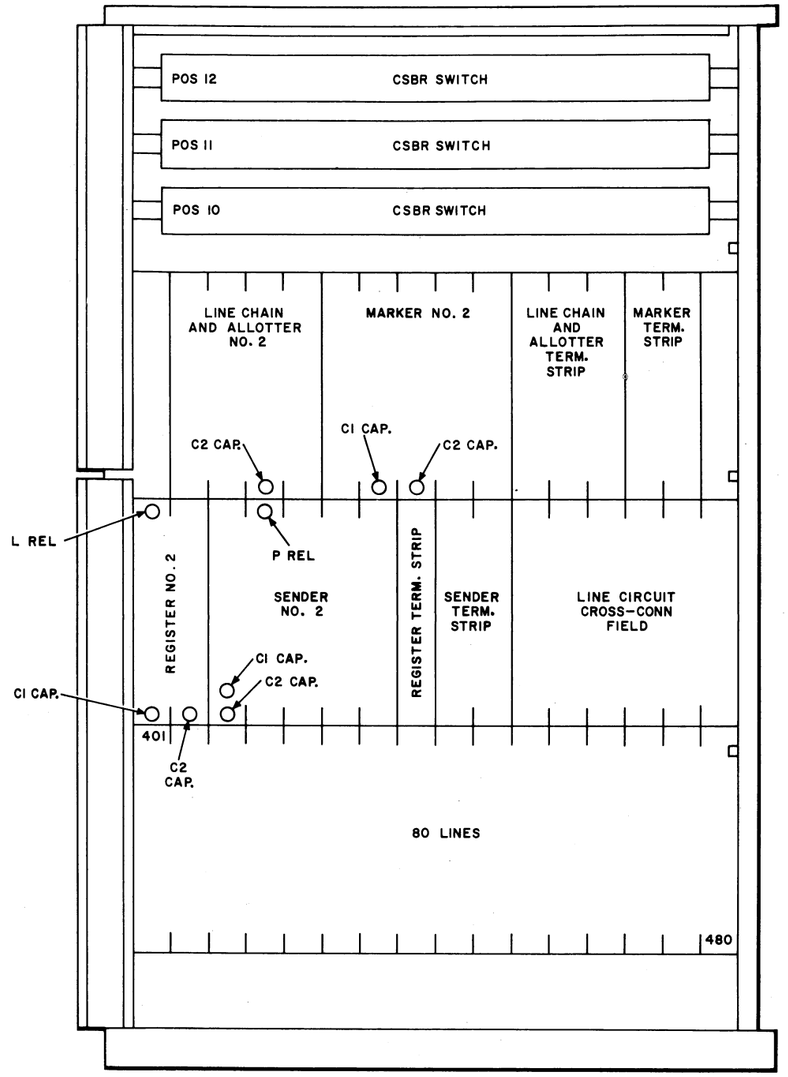


Fig. 2—Adapter, Schematic Diagram

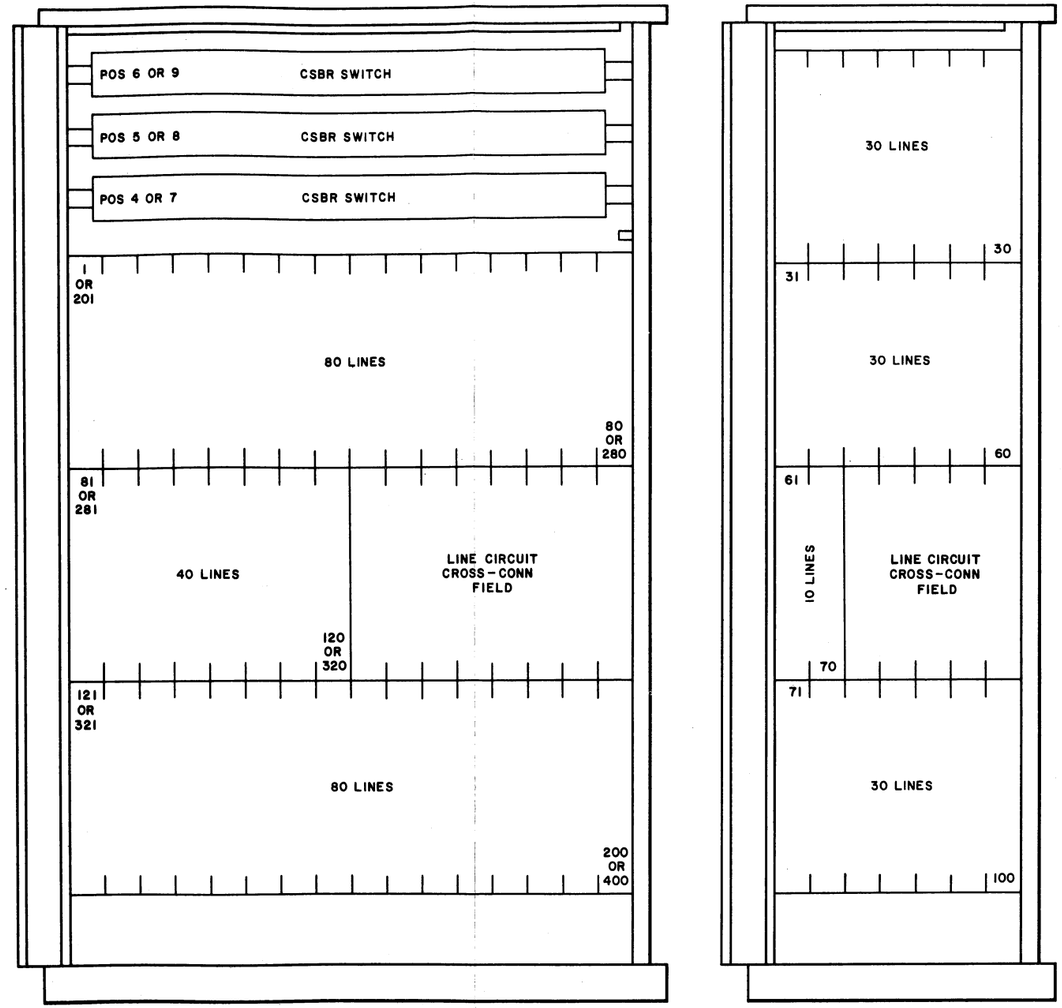


A. J41644A SWITCH CONTROL BAY



B. J41644G OR J41644B DUPLICATE SWITCH BAY

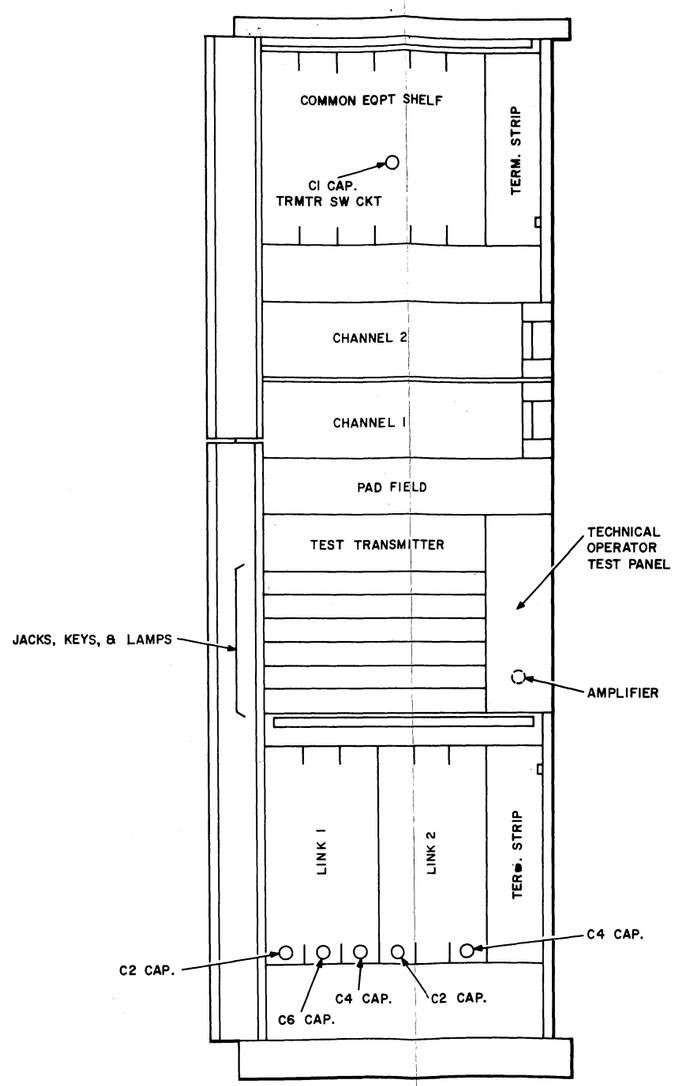
Fig. 3—11-Foot 6-Inch Large System Switch Bays



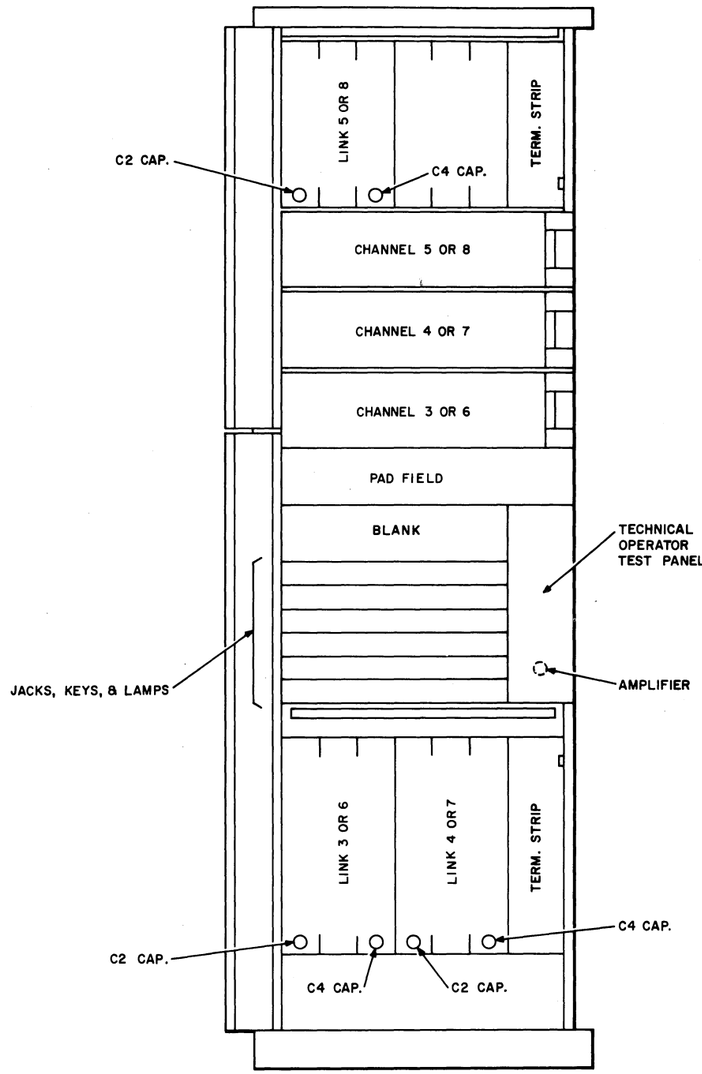
A. J41644C LINE CIRCUIT BAY NO. 1 OR NO. 2

B. J41644D LINE CIRCUIT BAY (100 LINES)

Fig. 4—11-Foot 6-Inch Large System Line Circuit Bays

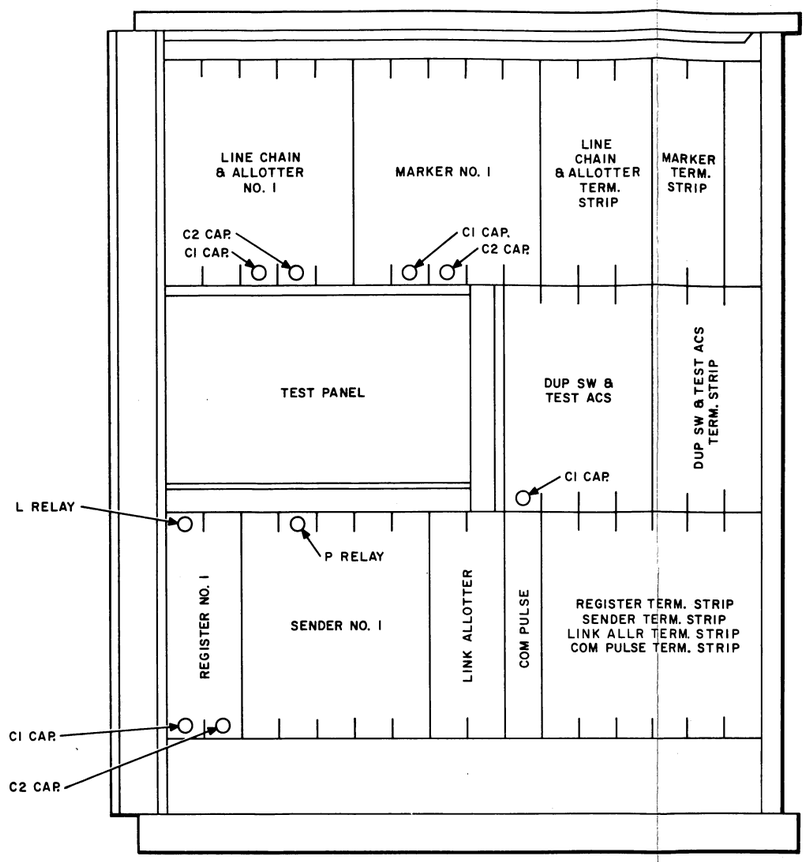


A. J41644E TSTA BAY NO. 1

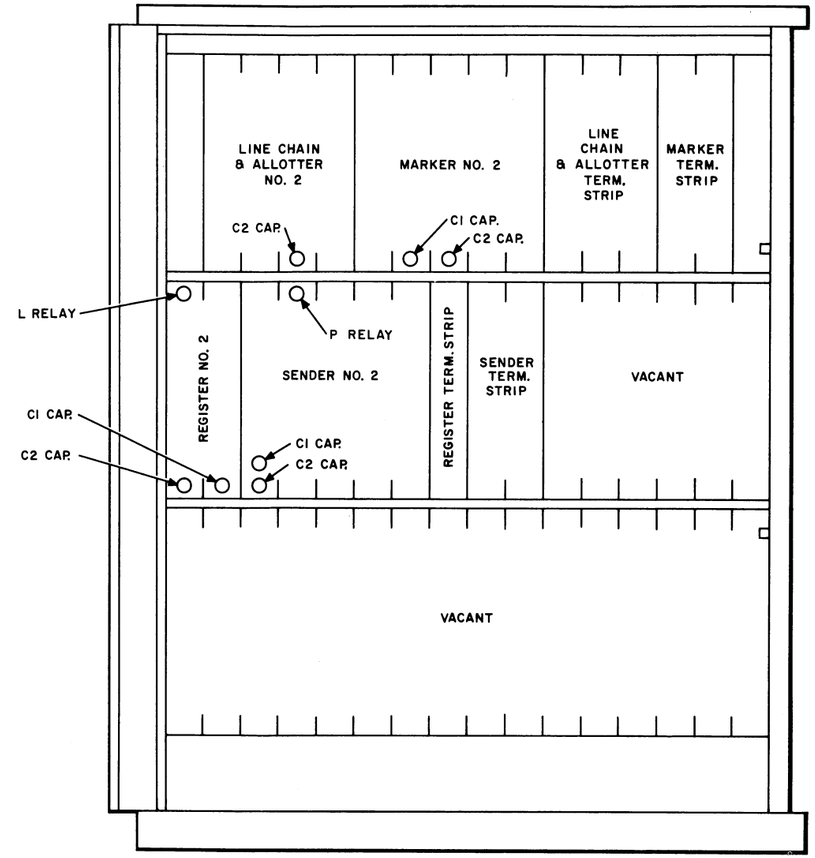


B. J41644F TSTA BAY NO. 2 OR NO. 3

Fig. 5—11-Foot 6-Inch Large System TSTA Bays



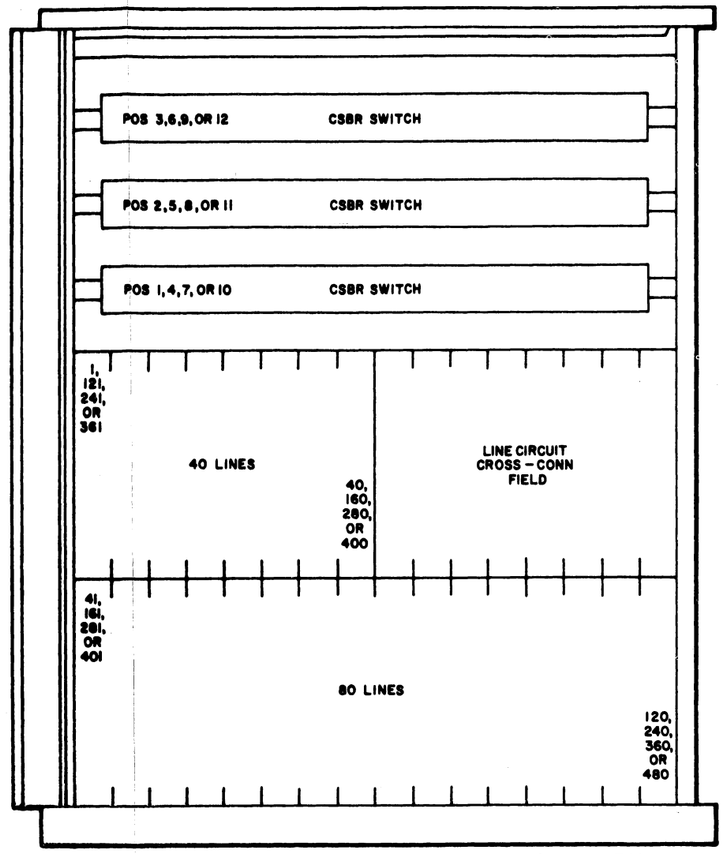
A. J41644K SWITCH CONTROL BAY



B. J41644L DUPLICATE SWITCH BAY

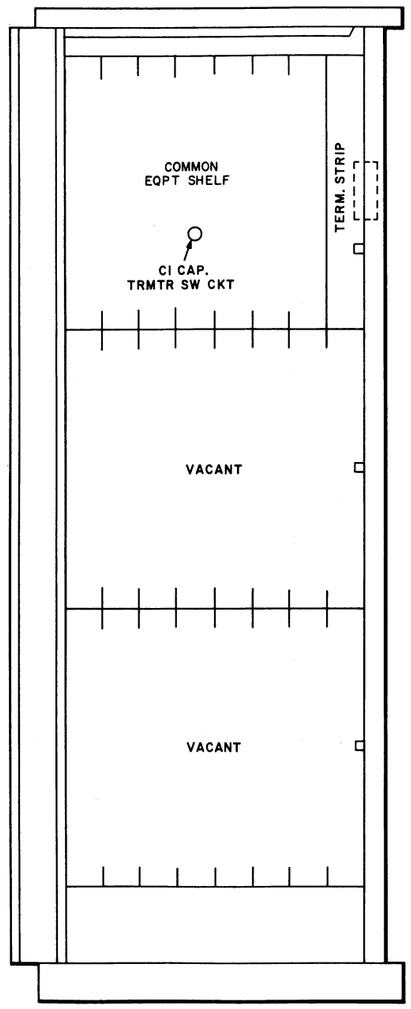
NOTE:
DENOTES OPTIONAL CIRCUITS OR EQUIPMENT TO BE ORDERED AS REQUIRED.

Fig. 6—9-Foot Large System Switch Bays

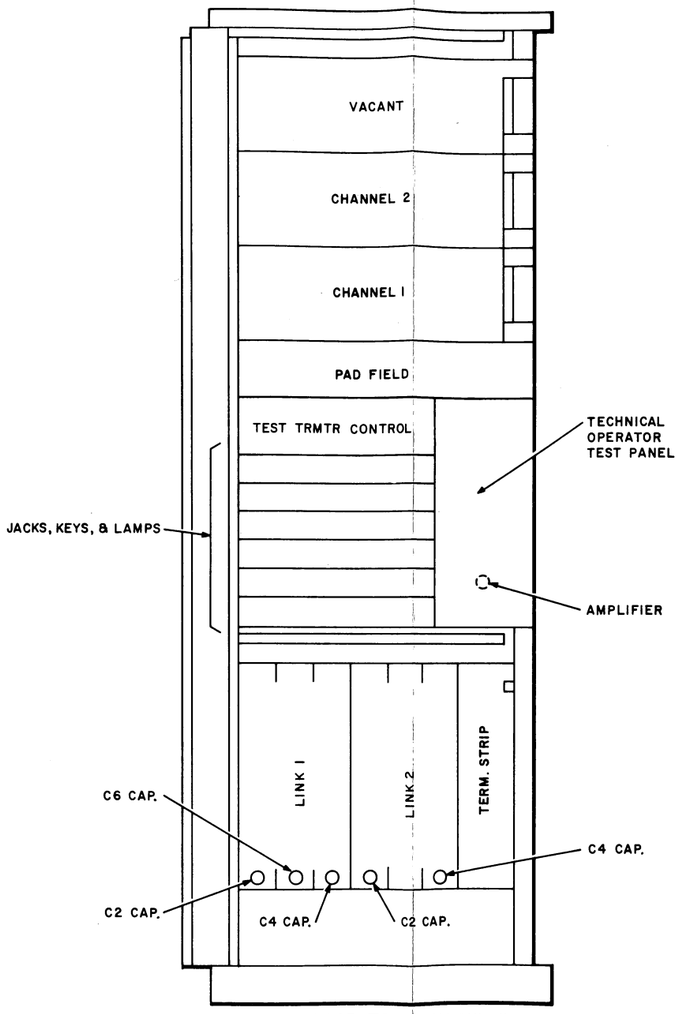


J41644M LINE CIRCUIT BAY NO. 1,2,3, OR 4 (120 LINES)

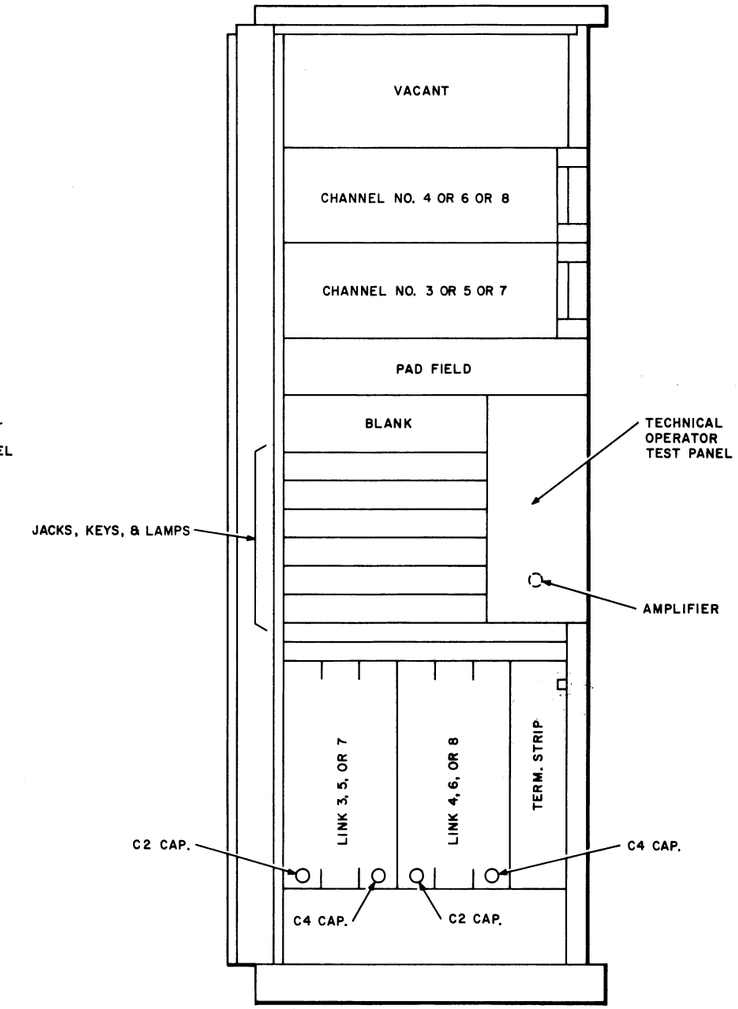
Fig. 7—9-Foot Large System Line Circuit Bays



A. J41644N TSTA BAY NO. 1



B. J41644P TSTA BAY NO. 2



C. J41644R TSTA BAY NO. 3, 4, OR 5

Fig. 8—9-Foot Large System TSTA Bays

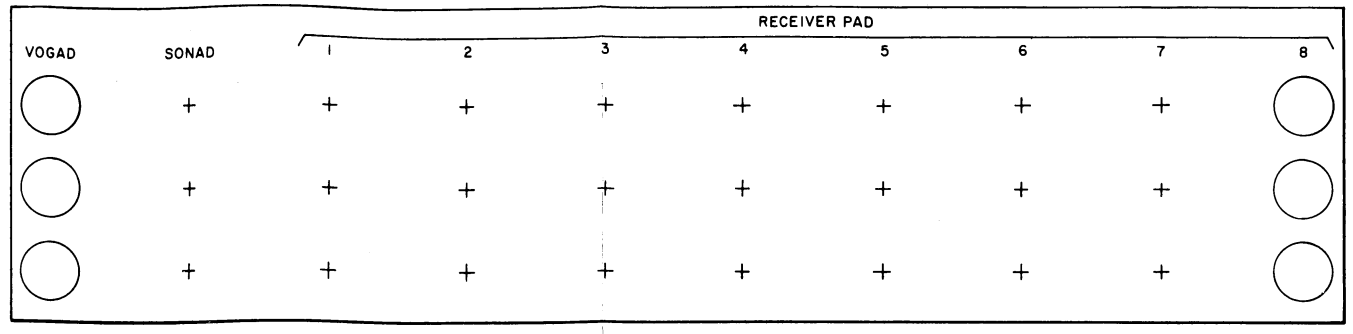


Fig. 9—Pad Field

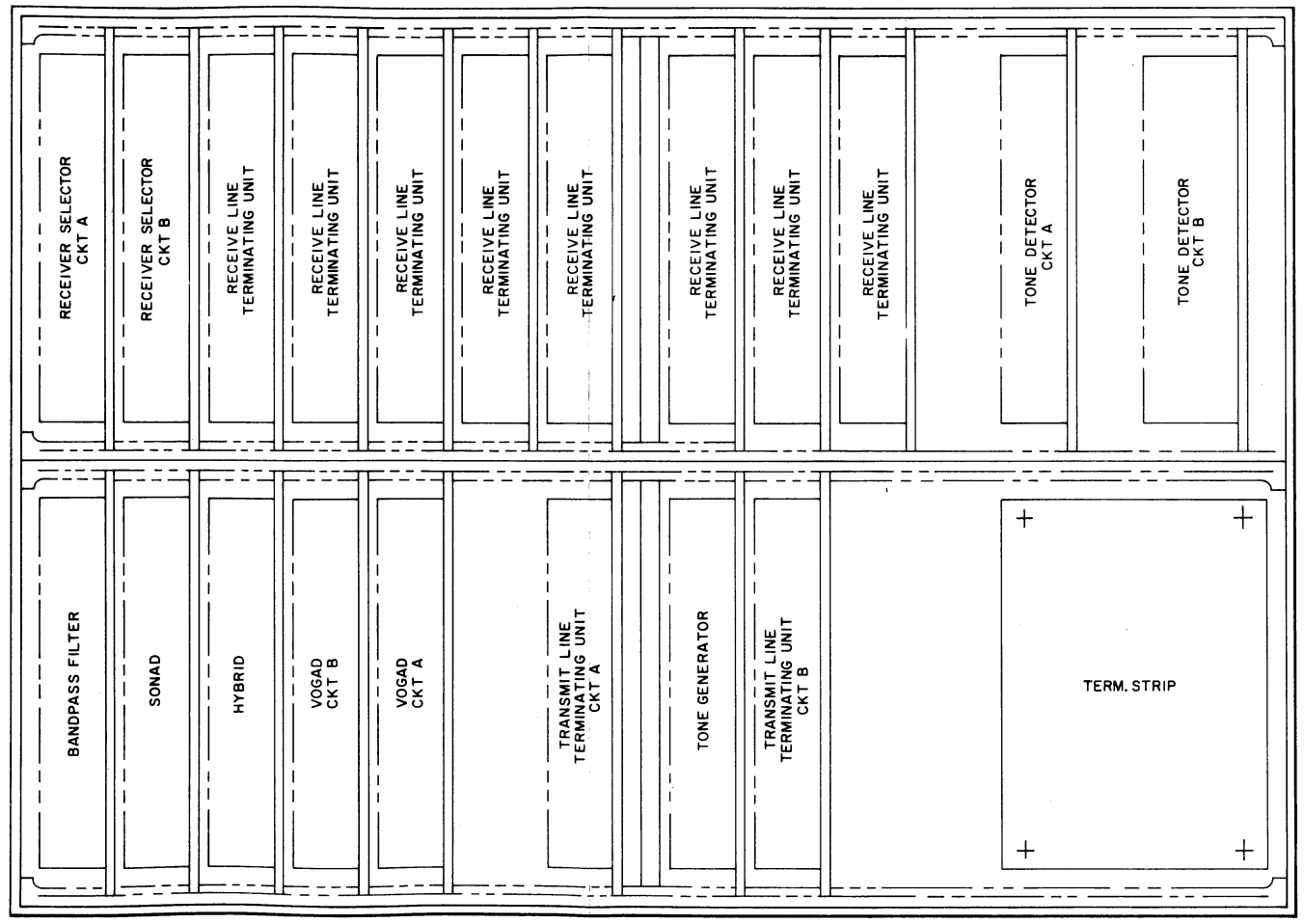


Fig. 10—Channel Shelf

Fig. 9 and 10

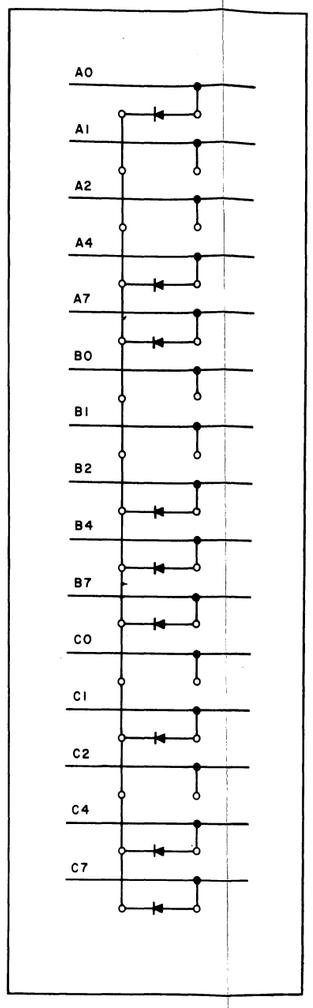


Fig. 11—Register Strapping Arrangement for Area Code 312

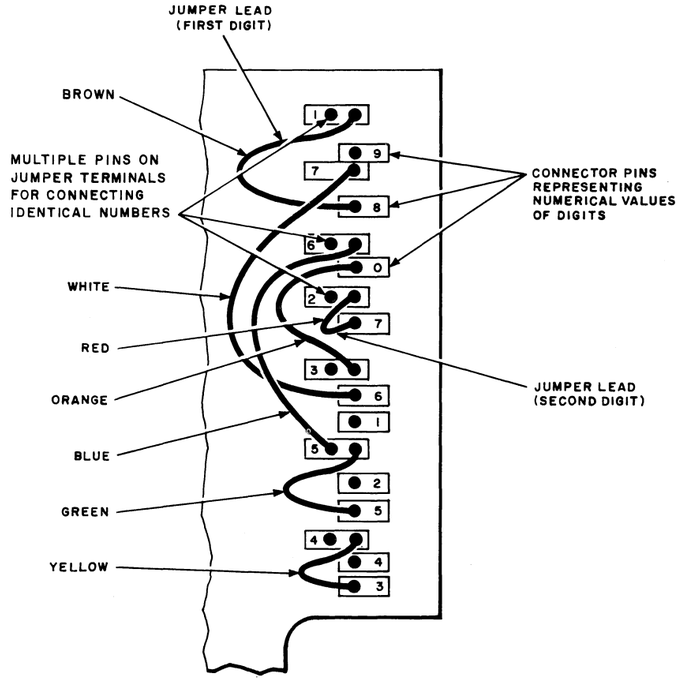


Fig. 12—Selector Circuit Board Connected for No. 870-3556

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Fig. 11 and 12