

REPLACING PAGE ADDENDUM
Filing Instructions:

1. REMOVE FROM THE SECTION THE PAGES NUMBERED THE SAME AS THOSE ATTACHED TO THIS PINK SHEET.
2. INSERT THE ATTACHED PAGES INTO THE SECTION IN THEIR PLACE.
3. PLACE THIS PINK SHEET AHEAD OF PAGE 1 OF THE SECTION.

MJ AND MK MOBILE RADIO TELEPHONE SYSTEMS
PERFORMANCE REQUIREMENTS
SMALL SYSTEM CONTROL TERMINAL
GENERAL EQUIPMENT REQUIREMENTS
RADIO SYSTEMS

1. GENERAL

1.001 This addendum supplements Section 806-158-180, 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 paragraph 4.03 and 4.06 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 5 dated December, 1972 reissued

Page 6 dated December, 1972 revised

MJ AND MK MOBILE RADIO TELEPHONE SYSTEMS
PERFORMANCE REQUIREMENTS
SMALL SYSTEM CONTROL TERMINAL
GENERAL EQUIPMENT REQUIREMENTS
RADIO SYSTEMS

CONTENTS	PAGE	
1. GENERAL	1	Telephone Control Terminal (<i>Small System</i>) shall meet before turnover to the operating company.
2. TEST EQUIPMENT	1	1.02 This section is reissued to add information pertaining to the MK Mobile Radio Telephone System and to make minor corrections.
3. PREPARATION	2	1.03 It is intended that this section be applicable to all initial installations and when additions are made to existing control terminals.
4. CIRCUIT OPERATION TESTS AND ADJUSTMENTS	6	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.
A. Channel Shelf (Channel 1)	6	
B. Channel Shelf (Channel 2, If Equipped)	7	
C. Sender	7	
D. Register-Translator	7	2. TEST EQUIPMENT
E. Base Station Identifier	8	2.01 All requirements are based on the use of the following test equipment, or equivalent.
F. Test Calls (Automatic)	9	1—Mobile Supervisory Unit (KS-19609, L2)
G. Test Calls (Switchboard)	10	1—Pulse Checking Test Set, J94723A
H. RLTU Test	11	1—Western Electric 3A Pulse Generating Test Set, J94732A (with J94732B Power Supply)
I. Alarms	11	1—Western Electric Digit Control Set, J94732C (used in optional procedure)
5. SUPPLEMENTARY INFORMATION— PROGRAMMING THE SUPERVISORY UNIT FOR THE MOBILE UNIT SIMULATOR	12	1—Multimeter, KS-14510, L1
1. GENERAL		1—Western Electric 3A Noise Measuring Set
1.01 This section covers the performance requirements which the MJ and MK Mobile Radio		1—Western Electric 35F (or ITE 4040) DC Adjusting Set

SECTION 806-158-180

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

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

3. PREPARATION

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

Note: It is assumed that all connections to the central office equipment and all connections between MJ \blacktriangleright or MK \blacktriangleleft bays (if a 2-channel system is provided) have been made according to the drawings except possibly the connection to the central office alarms. Also, all cross-connections must have been made as required by local conditions, including those in the translator (SD-2R050-01).

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

- (a) There are no broken or loose leads, short circuits, etc.
- (b) All relays operate with proper motion of armature and springs.

3.03 Check the operate-current and hold-current adjustment of all relays on one fully equipped relay bar selected at random.

Note 1: To facilitate testing, remove the relay bar from the bay and place it on the hanger which is provided.

Note 2: If more than one relay requires adjustment, repeat the test on two other fully equipped relay bars randomly selected (minimum: 20 relays each). If more than one relay requires adjustment on the second two bars chosen, report the findings to the Western Electric Company Supplies Inspection Organization.

3.04 Perform the following steps.

- (a) Plug all mercury relays, electrolytic capacitors, and thermal timing relays into their respective

locations. Refer to Fig. 1, 2, and 3 and to the appropriate SDs in order to locate the plug-in components.

- (b) Plug in the base station identifier **power cord**.
- (c) Insert a 0-dB 89-type resistor into the SONAD pad socket.
- (d) Insert \blacktriangleright 12-dB \blacktriangleleft 89-type resistors into the VOGAD and REC pad sockets.

Note: The values in 3.04(d) are for testing purposes only; proper working values are determined during line-up of the entire system. Refer to Section 405-200-501 (MJ System Line-Up) \blacktriangleright or Section 405-200-503 (MK System Line-Up). \blacktriangleleft

3.05 Check that the following circuit boards are strapped according to the SD drawings:

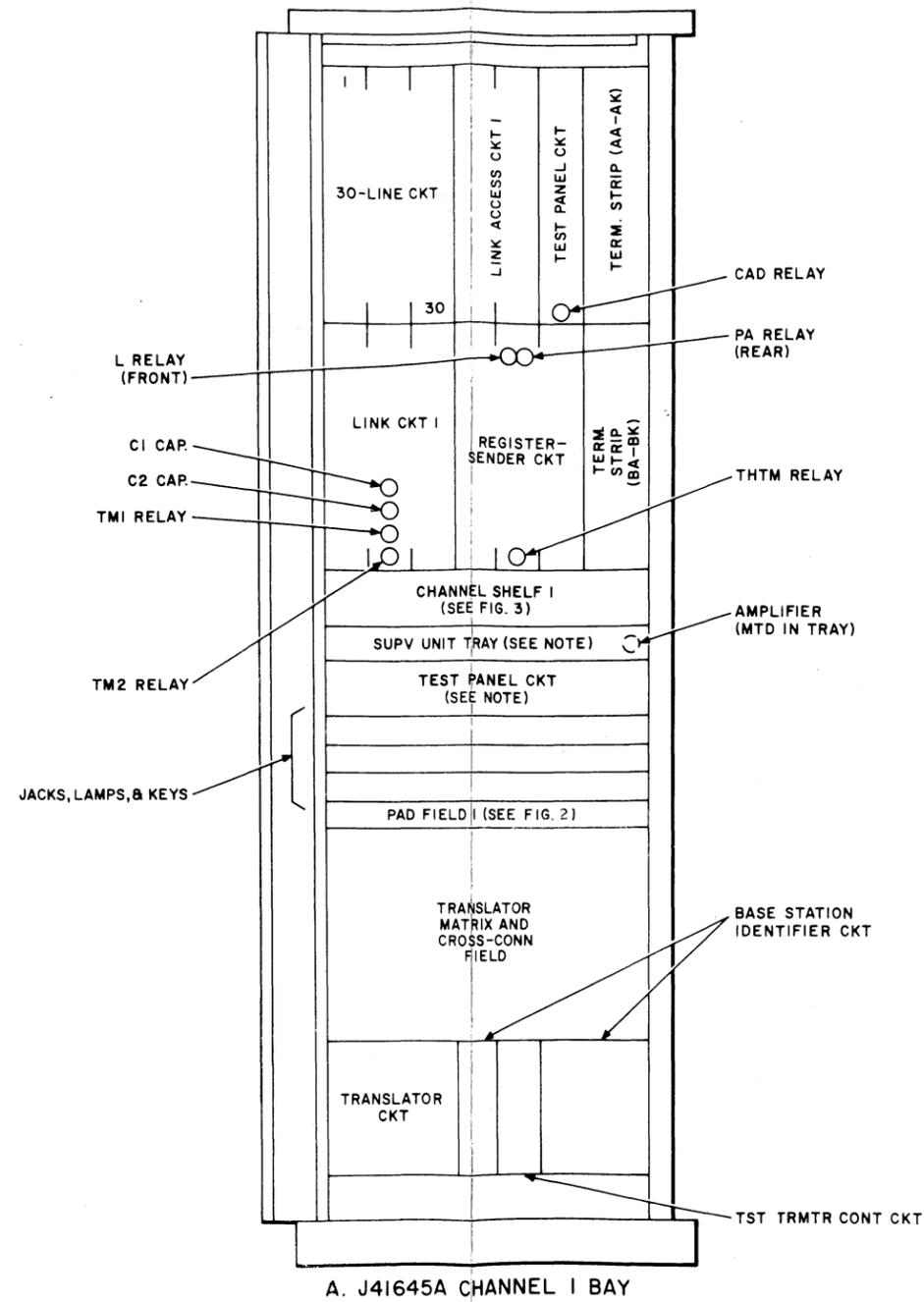
- (a) SD-2R000-01 (CPS4)—Transmit Line Terminating Unit
- (b) SD-2R000-01 (CPS5)—Receive Line Terminating Unit
- (c) SD-2R055-01 (CPS1)—Supervisory Interface Circuit.

3.06 On the transmit line terminating unit (TLTU) CPS4, SD-2R000-01, select current-limiting resistors R101 and R103 and connect them in the primary leads of line-matching transformer T101. Use 145- or 221-type, 1-percent resistors (or equivalent) soldered between standoff terminals provided on the board. These resistors must be of **equal value** with a minimum value of 50 ohms each. The proper values for the two resistors must be such that

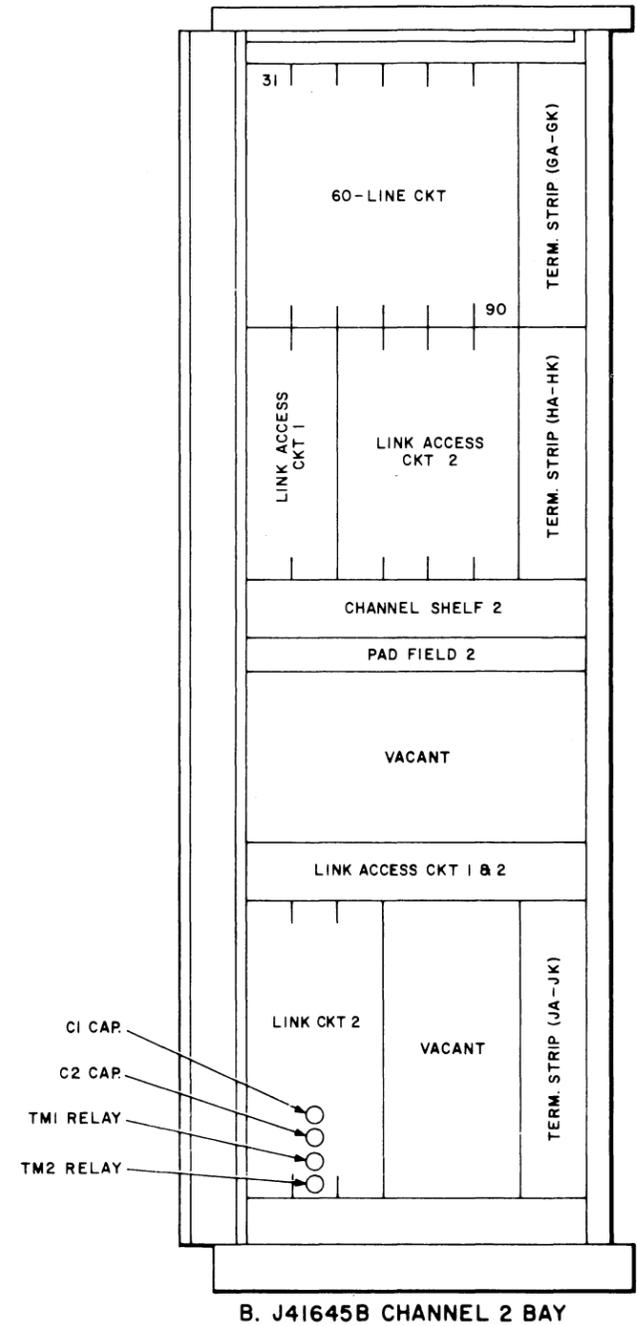
$$R_{101} + R_{103} + R(\text{loop}) = 3500 \text{ ohms}$$

where $R(\text{loop})$ is the total dc resistance of the connecting loop to the remote radio transmitter or carrier unit at approximately 77°F ambient temperature. (See also Sections 405-200-501 \blacktriangleright and 405-210-503 \blacktriangleleft .)

3.07 Plug all printed circuit boards into the channel shelf, noting carefully that each board is plugged into its own proper slot.



A. J41645A CHANNEL 1 BAY



B. J41645B CHANNEL 2 BAY

NOTE:
PART OF TEST PANEL CKT PROVIDES
SPACE FOR SUPERVISORY UNIT
KS-19609, L2.

Fig. 1—Small System Bays

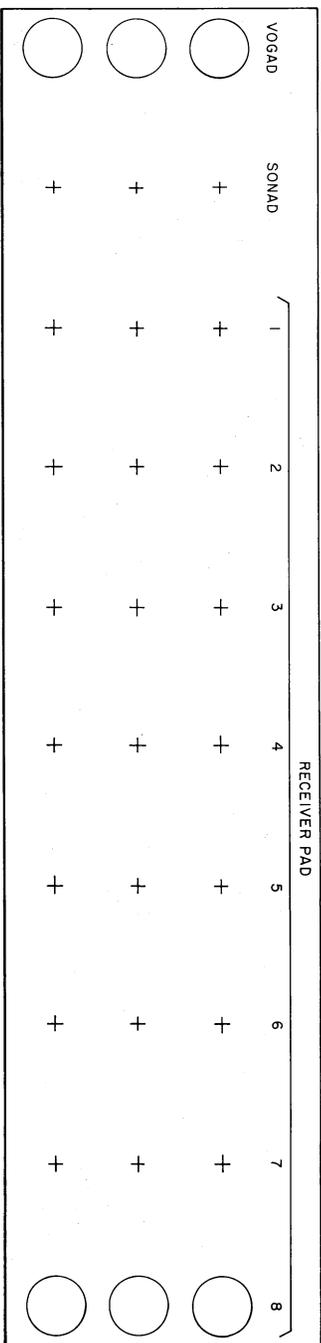


Fig. 2—Pad Field

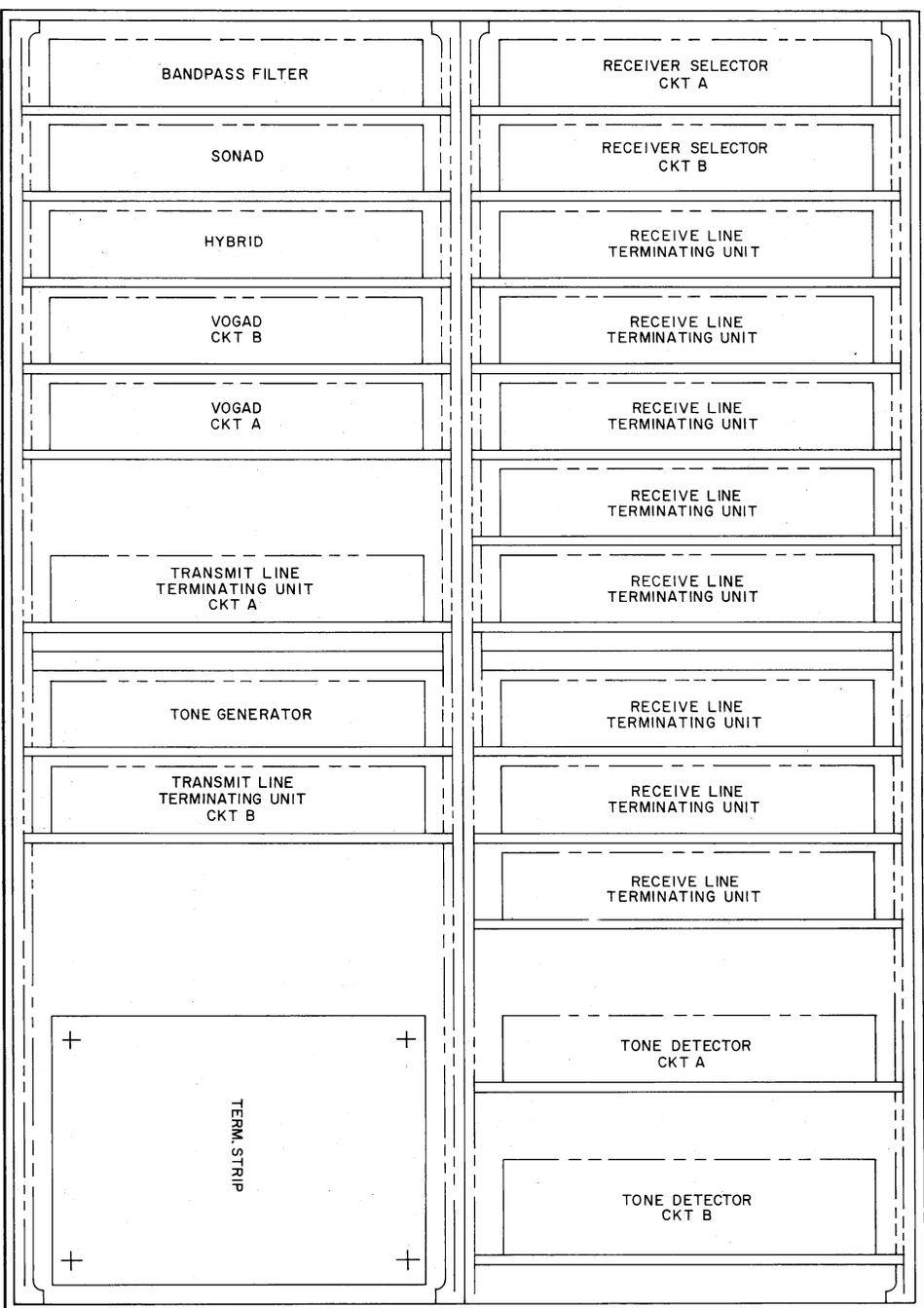


Fig. 3—Channel Shelf

SECTION 806-158-180

3.08 Set up the control terminal for system testing in the following manner.

- (a) Plug the supervisory interface circuit (CPS1 of SD-2R055-01) into its shelf located above the test panel.
- (b) Interconnect the XMTR TST and TLTU-1 jacks and the REC TST and REC LINE 1 LTU jacks on the transmission, signaling, and test access (TSTA) jack, key, and lamp field with patch cords.
- (c) Operate the T.P. ON key on the test panel.
- (d) Slide the KS-19609, L2 mobile supervisory unit into the shelf above the test panel and plug it into the connector on the supervisory interface circuit.
- (e) Operate the CHAN O/SVC key for channel 2, if equipped.
- (f) Operate the REJ keys in all other equipped REC LINE positions, if more than one receiver per channel is equipped.
- (g) Operate the CH-1 key.

3.09 Fuse the channel 1 bay according to SD-2R017-02. If necessary, manually operate the EP and RL relays in the link circuit and operate the AL-RL (alarm release) key on the test panel to normalize the terminal.

3.10 Using a dc voltmeter, measure the voltage at the frame battery post of each equipped bay. The voltage should be in the range of -45 to -52 volts dc.

4. CIRCUIT OPERATION TESTS AND ADJUSTMENTS

A. Channel Shelf (Channel 1)

4.01 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 TEST position.

4.02 Operate the CHAN O/SVC key. Using a 600-ohm oscillator or the milliwatt reference generator connected through a 600-ohm attenuator, apply a 1000-Hz test tone at -32 dBm to the VOG IN jack on the TSTA jack, key, and lamp field.

4.03 Connect a 3A noise measuring set to the LINE LIST jack. Set the FUNCTION switch of the 3A noise measuring set to the BRDG position and adjust the set for ± 3 kHz flat weighting ± 3 KC FLAT WTG). Measure the output with the 3A noise measuring set.

Requirement: The meter on the 3A noise measuring set shall read 77 dBm ± 3 kHz ± 3 dB (-13 dBm ± 3 dB).

Note: If this requirement is not met, refer to Section 405-210-505 (VOGAD Alignment) for a precise line-up.

4.04 Disconnect the oscillator and 3A noise measuring set. Reset the TEST-BAL-SPEECH switch on CPS2A to the SPEECH position. Release the CHAN O/SVC key.

4.05 Connect a dc voltmeter between TP102 of the receiver selector threshold control circuit board (CPS6B) and ground (TP101). Measure the negative dc voltage.

Requirement: The voltage at terminal TP102 shall be -5.4 ± 0.2 volts.

Note: If this requirement is not met, refer to Section 405-210-503 (Receive Line Terminating Unit and Receiver Selector Test and Adjustment Procedures) for a precise line-up.

4.06 Connect the 3A noise measuring set (arranged for ± 3 KC FLAT WTG) and a frequency counter or frequency meter to the LINE LIST jack on the TSTA jack, key, and lamp field; use the multiple jacks as required. Set the FUNCTION switch on the 3A noise measuring set to the BRDG position. Operate the CHAN O/SVC key for channel 1.

4.07 Individually operate the 600~, 1500~, 1800~, and 2000~ TONE keys (one at a time) on the TSTA jack, key, and lamp field. Observe the frequency and signal level for each tone, using the frequency counter and 3A noise measuring set.

Requirement: The frequency and signal level for each tone must meet the requirements listed in Table A. If the required levels are not obtained, adjust the associated potentiometer listed in Table A in order to get the proper level.

TABLE A

STONE KEY OPERATED	FREQUENCY	LEVEL	ADJUST POTENTIOMETER
600~	600 \pm 4 Hz	86 dBrn	R111
1500~	1500 \pm 10 Hz	86 dBrn	R113
1800~	1800 \pm 5 Hz	86 dBrn	R115
2000~	2000 \pm 5 Hz	86 dBrn	R117

Note: If these requirements cannot be met, refer to Section 405-210-501 (Tone Generator Tests).

4.08 Restore the last operated tone key to normal. Disconnect the 3A noise measuring set and the frequency counter. Restore the CHAN O/SVC key to normal.

B. Channel Shelf (Channel 2, If Equipped)

4.09 Repeat the tests contained in 4.01 through 4.08 for channel 2. At the conclusion, release all tone keys but leave the CHAN O/SVC key operated.

C. Sender

4.10 Verify that the local area code is programmed into the sender as follows. Determine that lead A is strapped to the first NPA digit, lead B to the second NPA digit, and lead C to the third NPA digit. For example, if the area code is 201, verify that lead A is strapped to 2, lead B to 0, and lead C to 1. Refer to SD-2R051-01 for terminal locations, if necessary.

4.11 Connect the pulse checking test set into the PLS TST jack on the TSTA jack, key, and lamp field. Calibrate the test set.

4.12 Measure the speed and percent break of the pulses from the sender on the pulse checking test set.

Requirement: The pulsing speed shall be 10 pps with a 50-percent break. If necessary, adjust the SPD (speed) and RATIO potentiometers on the test panel.

4.13 Disconnect the pulse checking test set.

4.14 Program a 4-digit number into the first horizontal of the translator matrix per SD-2R050-01. Remove the strap on terminal TS (AH 1).

4.15 Set the LINE and LINE GRP switches to their first positions and perform a sender test per CD-2R055-01 or Section 405-212-503 (Chart 3).

Requirement: The sender shall output the local area code number plus the number programmed in 4.14.

D. Register-Translator

4.16 Two methods are available for performing the following test. If a J94732C digit control set is available, use the procedure described in 4.17 and 4.18. If the J94732C digit control set is not available, refer to 4.19 through 4.22 for an alternative procedure.

Digit Storage Test Using Digit Control Set

4.17 Temporarily unplug the thermal timing (THTM) relay in the register-sender circuit. Connect a calibrated J94732A 3A pulse generating test set (with J94732B power supply and J94732C digit control set) into the EXT PLS jack on the TSTA jack, key, and lamp field. Short terminal DB12 to DD12 and terminal FF4 to FF13; also insulate contacts 2B and 3B of the ANI relay.

4.18 Program the digit control set for the local NPA code plus the 4-digit number programmed into the translator as described in 4.14. Set the LOOP switch on the pulse generating test set to the CLOSED position. Plug the test set into the EXT PLS jack and pulse this number into the register at the following three pairs of speed and ratio settings at 120-ms interdigit time. Observe the test panel lamps.

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

PULSING SPEED (PPS)	PERCENT BREAK
13.5	76
20.0	50
31.0	44

SECTION 806-158-180

Requirement: The number pulsed shall be correctly registered for each of the above pairs of speed and ratio settings, as noted by the following test panel lamp indications.

- (a) The MON or ER lamp lights.
- (b) The REG FAIL, TRANSL FAIL, IC, FSR, and OPR lamps do not light.

Note 2: If the requirement of 4.18 is not met, check and readjust the S20 and AS relays, repeat the test, and report the findings to the Western Electric Company Supplies Inspection Organization. After the test, reinsert the THTM relay, and clear the ANI relay and the shorted terminals of 4.17.

Note 3: To repeat the test, the register must be released and reseeded by removing and reinserting the plug in the EXT PLS jack.

Alternative Procedure for Digit Storage Test

4.19 If the J94732C digit control set is not available, reprogram the translator for a local area code (LAC) of 000, and program 0000 into the first horizontal of the translator matrix. (Refer to Notes 401 and 402 of SD-2R050-01.)

4.20 Temporarily unplug the thermal timing (THTM) relay in the register-sender circuit. Connect the J94732A 3A pulse generating test set (with the J94732B power supply) in the EXT PLS jack on the TSTA jack, key, and lamp field; set the LOOP switch on the pulse generating test set to the CLOSED position. Short terminal DB12 to DD12 and terminal FF4 to FF13. Plug the test set into the EXT PLS jack and pulse seven 0s (seven trains of ten pulses each) into the terminal at the following three pairs of speed and ratio settings at 120-ms interdigit time and observe the test panel lamps. (Do not pulse more than seven digits.)

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

PULSING SPEED (PPS)	PERCENT BREAK
13.5	76
20.0	50
31.0	44

Requirement: The number pulsed shall be correctly registered for each of the pairs of speed and ratio settings as noted by the following test panel lamp indications.

- (a) The MON or ER lamp lights.
- (b) The REG FAIL, TRANSL FAIL, IC, FSR, and OPR lamps do not light.

Note 2: If the requirement of 4.20 is not met, check and readjust the S20 and AS relays, repeat the test, and report the findings to the Western Electric Company Supplies Inspection Organization.

Note 3: To repeat the test, the register must be released and reseeded by removing and reinserting the plug in the EXT PLS jack.

4.21 Reprogram the translator for a local area code of 222 and program 2222 into the first horizontal of the translator matrix.

4.22 Repeat the test described in 4.20, using 2s instead of 0s. After the tests, reprogram the correct local area code into the translator. Reinsert the THTM relay and clear the shorted terminals of 4.20.

Note: If the requirements in 4.20 and 4.22 are not met, report the findings to the Western Electric Company Supplies Inspection Organization.

Overall Register-Translator Test

4.23 Perform a complete register-translator test per CD-2R055-01 or Section 405-212-503. Depending on the type of system installed, use Part I, II, or III of Table B of the CD or see Chart 2 of the BSP. Observe the lamps on the test panel.

Requirement: The indicated lamps in the test instructions should light.

E. Base Station Identifier

4.24 Plug a high-impedance headset or receiver into the LINE LIST jack for channel 1. Manually operate the ST1 relay in the base station identifier circuit. Verify that outpulsing of Morse

Code occurs and that the wheel stops after one rotation. If channel 2 is equipped, repeat the test, plugging the headset or receiver into the LINE LIST jack for channel 2 and operating the ST2 relay (having released the CHAN O/SVC key for channel 2 to perform the test).

F. Test Calls (Automatic)

Preparation

4.25 Obtain from the local personnel at least three central office number assignments and line circuits:

- (a) One line for a home customer line circuit, arranged for ground-start according to SD- and CD-2R049-01
- (b) One line for the roamer line circuit, also arranged for ground-start (to be associated with the link circuit)
- (c) A test line arranged for loop-start (to be associated with the test panel).

Cross-connect these lines to the MJ or MK circuits at the distributing frame per the Cable Application Drawings (CADs). (See also 4.27.) If the local personnel are prepared to assign more numbers and line circuits to mobile service at this time, also arrange these for ground-start and cross-connect them at this time. Assign the mobile line circuits in numerical order, starting with line 1.

4.26 Program the number assigned to each home customer line circuit into the corresponding horizontal of the translator matrix. Remove the strap on the corresponding terminal on terminal strip AH or AJ. (Refer to SD-2R050-01, Note 402.)

4.27 If only one line can be obtained for home mobile assignment, do not make a soldered cross-connection at this time. This line may be moved to other line circuits to test them, provided the translator programming and strapping are also moved accordingly. (See 4.26.)

4.28 The KS-19609, L2 mobile supervisory unit must also be programmed. For instance, to simulate the mobile subscriber assigned to line 1, the local NPA code plus the 4-digit directory number assigned to line 1 (i.e., programmed into translator horizontal No. 1) must be programmed

into the unit per Part 5 of this section or per SD-2R028-01-D1.

4.29 Cross-connect the trunk circuit to the mobile service position for each channel equipped (SD-25667-01 or SD-56525-01, and SD-99419-01, as required).

Test Procedure (All Line Circuits)

4.30 Perform the following test calls on each line circuit:

- (a) Mobile-to-land (4.31)
- (b) Land-to-mobile (4.32)
- (c) Land-to-mobile with all channels busy, followed quickly by a mobile-to-land call (4.33)
- (d) Land-to-mobile with no acknowledge (4.34).

Note: If the system under test is a 2-channel system, test the first half of the line circuits using channel 1; then busy-out channel 1 by operating its CHAN O/SVC key; release the CHAN O/SVC key of channel 2; transfer the patch cords from LTU 1 and TLTU 1 to LTU 2 and TLTU 2; and test the second half of the line circuits using channel 2. Operate the channel select key from CHAN 1 to CHAN 2.

4.31 Mobile-to-Land Call (Refer to Section 405-212-503, if necessary): Operate the MOBL key, remove the handset, and operate the MOBL OFF HK key on the test panel. The XMIT lamp should light and the supervisory unit will outpulse. The register will store the number and the translator will translate the number into a line circuit appearance and operate the link access circuit. Dial tone should now be heard. Test a few of the line circuits by dialing a local test number; however, for most of the line circuits, let the presence of the dial tone suffice. Release the MOBL OFF HK key. The XMIT and ML lamps should extinguish, the SEARCH lamp should flash briefly, and the MI lamp should light.

4.32 Land-to-Mobile Call: Operate the PHONE key on the test panel and remove the handset. Dial the number of the simulated mobile per the assignment in 4.25. The central office will

seize the terminal, the MI lamp will extinguish, and the LM, SDR, BY, etc., lamps will be lighted (see CD-2R055-01, Table A). The terminal will then output the corresponding number programmed in the horizontal of the translator matrix. If properly programmed, the mobile, simulated by the supervisory unit and interface circuit, should briefly transmit an acknowledge pulse, and the terminal will ring the mobile. To simulate answer, operate the MOBL ANS key; the central office high tone will be heard, indicating a talking path. To terminate the call, release the MOBL ANS key and replace the handset. The terminal should revert to the idle condition with the MI lamp lighted.

4.33 *Land-to-Mobile Call With All Channels Busy:*

The following procedure is designed to check ring tripping and collision. Operate the CHAN O/SVC key on the channel under test. Initiate a land-to-mobile call as in 4.32. Ringing should be tripped by the MJ or MK line circuit, and 120-ipm busy tone should be heard. Now, without hanging up, release the CHAN O/SVC key; when the channel is marked idle, operate the MOBL ANS key to initiate the mobile-to-land call.

Requirement: At the end of ANI, the 120-ipm tone is removed and the central office high tone is heard. Hang up as described in 4.32.

4.34 *Land-to-Mobile Call with No Acknowledge:*

The following procedure is designed to check mobile lockout. Operate the MAN. key to place the mobile in the manual mode. Initiate a land-to-mobile call as in 4.32. Approximately 3 seconds after the end of outputting, the channel should be released and the mobile's line circuit placed in lockout (BY relay operated). However, ringing should not be tripped. Hang up and note that the BY relay releases. Also release the MAN. key.

Test Procedure (Roamer Line Circuits Only)

4.35 *Mobile-to-Land Call:* The following procedure is designed to check the roamer line circuit (if any roamers are allowed to dial). Change the programming of the mobile supervisory unit so that it will simulate a free-service roamer. Initiate a mobile-to-land call as in 4.31. Verify that the FSR lamp on the test panel is lighted before and during dialing, that the RLC relay in the link circuit is operated, and that dial tone can

be heard. If roamers are not permitted to dial or if the central office does its own diverting, omit this test.

G. Test Calls (Switchboard)

4.36 Perform the following test calls to check the operation of the mobile service operator's switchboard position:

- (a) Mobile-to-land call in automatic mode with parity failure, **◆MJ and MK◆** (4.37)
- (b) Mobile-to-land call in manual mode, **◆MJ only◆** (4.38)
- (c) Switchboard-to-mobile call on marked-idle channel, **◆MJ and MK◆** (4.39)
- (d) Switchboard-to-mobile manual call on nonbusy channel, **◆MJ only◆** (4.40)
- (e) Emergency break-in, **◆MJ only◆** (4.41).

4.37 *Mobile-to-Land Call in Automatic Mode With Parity Failure ◆(MJ and MK)◆ :*

Initiate a mobile-to-land call as in 4.31, except during pulsing, briefly block the FG relay in the register-sender circuit. (This simulates parity failure and routes the call to the operator.) Verify that the operator position is seized and that the operator can talk to the simulated mobile. Hang up; the operator should get disconnect supervision and the channel should remain busy until the operator unplugs.

4.38 *Mobile-to-Land Call in Manual Mode ◆(MJ Only)◆ :*

Place a manual mobile-to-land call by operating the MAN., MOBL, and MOBL OFF HK keys on the test panel. Remove the handset and briefly operate the push-to-talk switch on the handset. The SEL, OPR, and XMIT lamps should light. Verify that the operator position is seized, that the operator can talk to the simulated manual mobile, and that the mobile can reply when he operates his push-to-talk switch. Verify that the operator can release the channel by unplugging. Release the MOBL, MOBL OFF HK, and MAN. keys.

4.39 *Switchboard-to-Mobile Call on Marked-Idle Channel ◆(MJ and MK)◆ :*

From the switchboard position, seize the marked-idle channel (indicated by a lighted lamp under the A jack)

and dial the simulated mobile. The operator must simulate the sender by prefixing the 4-digit directory number programmed into the supervisory unit with the local area code. With the MAN. key *not* operated at the test panel, verify that mobile ringing is indicated. Operate the MOBL and MOBL OFF HK keys and lift the handset. Verify that the mobile can talk to the operator. Release the call as in 4.37.

4.40 Switchboard-to-Mobile Manual Call On Nonbusy Channel (MJ Only): From the switchboard, seize a nonbusy channel (lamp is extinguished under the B jack) by plugging into the B jack and dialing the mobile as in 4.39. With the MAN. key previously operated on the test panel, verify that ringing briefly takes place. Operate the MOBL and MOBL OFF HK keys and lift the handset. Verify that the mobile can talk to the operator by using the push-to-talk switch. Release the call as in 4.38.

4.41 Emergency Break-In (MJ Only): Place an automatic mobile-to-land call as in 4.31. After the call is set up, verify that the operator can plug in and talk to the parties involved on an emergency basis.

H. RLTU Test

4.42 If more than one receiver per channel is equipped, place one mobile-to-land test call (see 4.31) through each of the other RLTUs, plugging into the associated LTU jack and rejecting all other receivers (see 3.08). Verify that a talking path exists through each RLTU.

I. Alarms

4.43 Verify that the alarm portion of the test panel circuit is strapped according to Note 401 of SD-2R055-01.

4.44 Perform the following lettered steps to check the functioning of control terminal alarms. Observe the operation of the appropriate alarm relays and lamps.

- (a) Operate the REG TST key on the test panel. Manually operate three of the CU relays in the register-sender circuit.

Requirement: The RAL relay in the register-sender circuit and the MIN relay in

the test panel circuit shall operate and hold. These are indicated by the lighted IC and REG FAIL lamps on the test panel and the MIN lamp on the stile strip. Release the register by restoring the REG TST key. Release the alarm with the AL-RL key.

- (b) Temporarily remove one shorting disk from a translator matrix horizontal. Perform a sender test on that horizontal.

Requirement: After about 20 seconds of pulsing, the SAL and MIN relays in the test panel circuit shall operate, as indicated by the MIN and SDR FAIL lamps. Release the SDR TST and SDR ALL keys. Release the alarm with the AL-RL key. Reinsert the shorting disk.

- (c) Operate the TBL relay in the translator circuit.

Requirement: The MIN relay in the test panel circuit should operate and hold, as indicated by the MIN and TRANSL FAIL lamps. Release the alarm as in 4.44(b).

- (d) Operate the IAL relay in the base station identifier circuit.

Requirement: The MIN relay shall operate and hold, as indicated by the lighted MIN and BSI FAIL lamps. Release the alarm as in 4.44(b).

- (e) Briefly unplug the base station identifier power cord.

Requirement: The MIN relay shall operate as in 4.44(d) but *not* hold when the power is restored.

- (f) Pull the patch cord plug from the XMTR TST jack on the TSTA jack, key, and lamp field.

Requirement: A transmitter failure and a major alarm shall be indicated by the MAJ lamp on the stile strip and the XMTR FAIL lamp on the test panel. Reinsert the plug and release the alarm with the AL-RL key.

- (g) Pull the patch cord plug from the REC TST jack on the TSTA jack, key, and lamp field.

Requirement: A receiver failure and a major alarm shall be indicated by the MAJ lamp on the stile strip and the REC FAIL lamp on the test panel. Reinsert the plug. Repeat the test for each equipped receiver by releasing the associated REJ key.

- (h) Manually operate a fuse.

Requirement: A major fuse alarm shall be indicated by the MAJ fuse lamp on the stile strip.

- (i) Remove the fuse in the link circuit.

Requirement: A tone failure and a major alarm shall be indicated by the MAJ lamp on the stile strip and the TONE FAIL lamp on the test panel. Reinsert the fuse. Repeat the test for the other link (if equipped).

4.45 Verify that the major and minor alarms are indicated properly to the central office alarm system. If alarm sending is used, verify that alarms are transmitted and that the distinctive tone of the major alarm can be heard by a person checking the alarm.

Note: As long as the remote radio transmitter and receivers are not equipped, transmitter and receiver failure alarms will be indicated if the patch cords (see 3.08) are pulled out, or if the T.P. ON key is not operated, or if other receivers on the channel are not rejected via the REJ keys. Only after the radio gear is equipped and the loops to them cross-connected to the terminal can the patch cords be removed, the T.P. ON key released, and the REJ keys released.

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

5.01 Jumper leads and connector pins on the selector printed circuit board are connected to establish the desired number. (See Fig. 4.) The jumper leads are color coded, indicating the

digits to which they correspond. (Refer to Table B.) Also, the connector pins are numbered. To set up the proper code, proceed as follows.

*See also SD-2R028-01, Note 401.

TABLE B

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

- (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 each digit of 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. For instance, if the fourth digit is a 3, connect the fourth jumper to pin 3.

- (b) **For Code Numbers Containing One or More Similar Digits:**

Connect the first digit jumper lead to the desired pin connector as described in (a). If the value of another digit of the sequence is the same as that of the first digit, connect its 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 its 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.

Bell Telephone Laboratories

Dept 5111

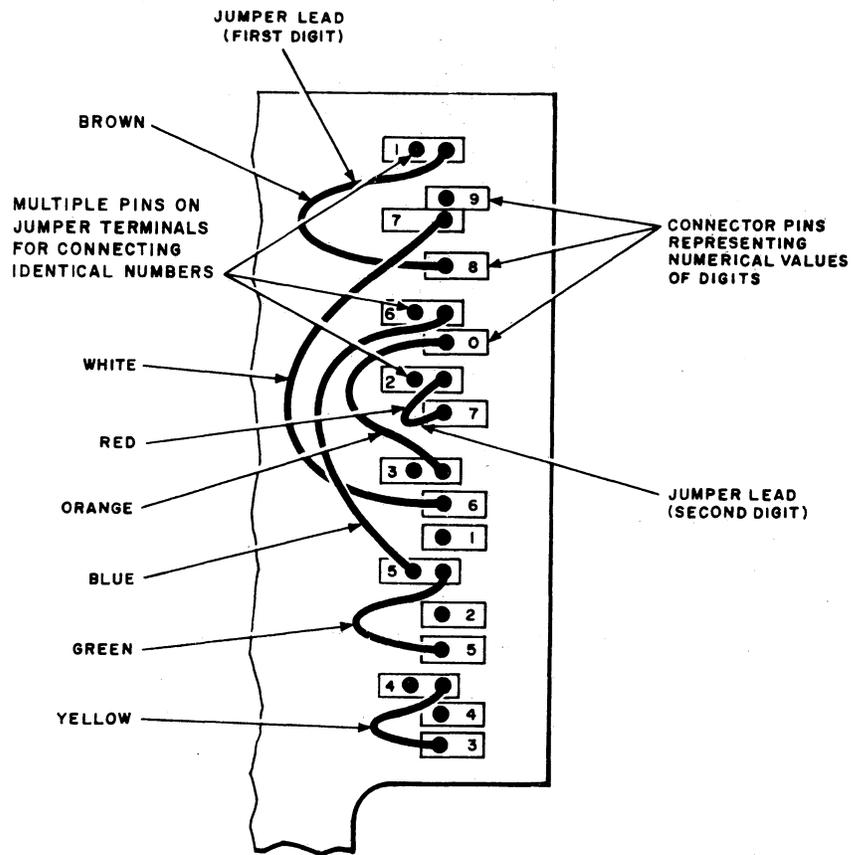


Fig. 4—Selector Circuit Board Connected for No. 870-3556