

**CORD AND KEY PULSING CIRCUITS  
CONTINUITY AND OPERATION TESTS  
USING TEST CIRCUIT SD-63971-01 OR SD-55056-01  
18B TESTBOARD**

**1. GENERAL**

**1.01** This section describes a method of making continuity and operation tests of primary cord circuits, secondary cord circuits, patching cords, and dial and key pulsing circuits associated with the 18B testboard, using test circuit SD-63971-01 or SD-55056-01.

**1.02** This section is reissued to provide for the use of the J64717B control set, to clarify and rearrange the test procedures, and to expand Test N to cover offices where the multifrequency distribution system or the keyset circuit, or both, have been modified for the reduced transmitting level of -3 dbm per frequency. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

**1.03** The tests covered are:

**A. Primary Test Circuit — Continuity and Balance:** This test checks the continuity and balance of all test cords associated with the primary test circuit through the test circuit and into the position telephone circuit. It also checks the operation of the TALK, VM (voltmeter), and RING keys and tests the tip and ring conductors for crosses with battery and ground.

**B. Primary Test Circuit — Ringing Key:** This test checks the 20-cycle ringing feature of the primary test circuit.

**C. Patching Cords:** This test checks the continuity and balance of the tip and ring conductors of the various types of patching cords used with the 18B toll testboard.

**D. Secondary Cord Circuit — Continuity:** This test checks the continuity and balance of the secondary cord circuit including the tip and

ring leads through the position circuit to the position telephone circuit. It also checks the operation of the TALK and MON (monitoring) keys and tests the tip and ring conductors for crosses with battery and ground.

**E. Secondary Cord Circuit — Ringing Key:** This test checks the operation of the position RING key associated with the secondary cord circuits.

**F. Busy Test Feature:** This test checks the operation of the position busy test feature associated with the secondary cord circuits.

**G. Telephone Circuit:** This test checks the position telephone circuit for talking and monitoring on secondary cord circuits.

**H. Lockout Feature (Two Secondary Cord Circuits Provided):** This test verifies that only one secondary cord circuit at one time may be connected to the position circuit by operating the TALK key.

**I. Splitting Feature:** This test checks the operation of the position SPLIT key associated with the secondary cord circuits.

**J. Holding and Splitting Terminations:** This test verifies that the terminations are connected when using the position SPLIT key or secondary cord circuit holding features.

**K. Pad Control Simplexes:** This test verifies that battery is connected to the pad control simplexes when a secondary cord circuit TALK key is operated and that the monitoring simplex is connected to the monitoring leads when the MON (monitoring) and CLOSE 3RD keys of one secondary cord circuit and the TALK key of another secondary cord circuit are operated.

**L. Dialing Circuit:** This test verifies that the dialing circuit is connected to a secondary cord circuit whose TALK key is operated, by operation of the position dial key, that the dialing circuit cannot be disconnected by error after dialing has started and checks the operation of the dial.

**M. DC Key Pulsing Circuit:** This test checks the connection, operation, and disconnection of the DC key pulsing circuit or the DC portion of a combined DC-MF key pulsing circuit.

**N. MF Key Pulsing Circuit:** This test checks the connection, operation, and disconnection of the MF key pulsing circuit or the MF portion of a combined DC-MF key pulsing circuit.

**1.04** In the verification of the various tests, indications such as the presence of tone, absence of tone, lighting of lamps, extinguishing of lamps, and flashing of lamps, unless specifically called for, should be disregarded.

**1.05 Lettered Steps:** A letter a, b, c, etc., added to a step number in Part 3 of this section, indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

**2. APPARATUS**

**2.01** The apparatus required for each test is shown in the following list. The details for each item are covered in the indicated paragraph.

**2.02** Test Circuit SD-63971-01 or SD-55056-01.

**2.03** Portable Control Set J64717A (associated with SD-63971-01 or SD-55056-01) or Control Test Set Circuit J64717B (SD-96490-01).

**2.04** Portable AC Voltage Test Set J68602AH (SD-64125-01) or AC Relay and Signaling Test Set J68602AJ (SD-63674-01).

**2.05** Head Telephone Set (for plugging into telephone jacks of position under test).

**2.06** Test Receiver — No. 716A Receiver attached to an R2DB Cord, 6 feet long, equipped with one No. 347B Plug (2W32A Cord) (used for connecting to control set (REC) jacks for making test verifications).

*Note:* A head telephone set may be used in place of the test receiver.

**2.07** No. 309 or similar type plug.

**2.08** P3F Slate Cord, 6 feet long, equipped with one No. 309 Plug with red shell and one No. 310 Plug with red shell (3P12E Cord).

**2.09** P3F Slate Cord, 6 feet long, equipped with one No. 309 Plug with gray shell and one No. 310 Plug with gray shell (3P12F Cord).

**2.10** P3F Slate Cord, 6 feet long, equipped with one No. 309 Plug with black shell and one No. 310 Plug with black shell (3P12G Cord).

**2.11** W3M Cord, 6 feet long, equipped with one No. 310 Plug, one No. 360A Tool, one No. 360B Tool, and one No. 360C Tool (3W4A Cord) and three KS-6278 Connecting Clips with jaws insulated by means of No. 108 Cord Tips (for use in connecting secondary cord circuit to AC Voltage Test Set).

Apparatus	Tests													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Test Circuit (2.02)	1	—	1	1	1	1	1	1	1	1	1	1	1	1
Control Set (2.03)	1	—	1	1	1	—	—	—	—	1	1	1	1	1
Test Set (2.04)	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Head Telephone Set (2.05)	1	—	—	—	—	1	1	1	1	—	—	—	—	—
Test Receiver (2.06)	1	—	1	1	—	—	—	—	—	1	—	—	—	—
Plug (2.07)	—	—	—	—	—	—	—	—	—	—	—	1	1	1
Patching Cord (2.08)	1	—	1	1	1	—	—	—	—	1	1	1	1	1
Patching Cord (2.09)	1	—	1	1	1	—	—	—	—	1	1	1	1	1
Patching Cord (2.10)	—	—	—	—	—	—	—	—	—	1	1	—	1	—
Testing Cord (2.11)	—	—	—	—	—	—	—	—	—	—	—	—	—	1

**3. METHOD**

STEP	ACTION	VERIFICATION
<b>A. Primary Test Circuit — Continuity and Balance</b>		
1	Connect head telephone set to telephone jacks of position to be tested	
2	Connect test receiver to either REC jack of control set	
3	Operate control key of control set to BAL	
4	Connect jacks 1 and 2 of control set to jacks 1 and 2 of test circuit, respectively, using P3F cords	
5a	If A and B cords of primary test circuit are equipped with 241-type plugs — Insert plugs of A and B cords into CORD TEST A and B jacks, respectively, of test circuit	
6b	If A and B cords of primary test circuit are equipped with 309-type plugs — Insert plugs of A and B cords into C and D jacks, respectively, of test circuit	
7	Move potentiometer of control set from its extreme counterclockwise position to its extreme clockwise position	Appreciable tone heard in test receiver while potentiometer is near either extreme position
8	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero (See Step 10c)
9	Operate A and B TALK keys	Minimum tone (See Step 10c)
10c	If series unbalance exists — Operate and release, successively, T and R keys of control set	When key associated with defective conductor is operated — If conductor is open — Volume of tone will not change
11	Restore A and B TALK keys	Minimum tone
12	Operate G-RV key of control set to G	Minimum tone
13	Apply slight pressure in several directions to the A and B TALK and VM key levers and tap lightly on tops of keys	No clicks or change of tone
14	Operate A and B TALK keys	Minimum tone
15	Apply slight pressure in several directions to A and B TALK key levers and tap lightly on tops of keys	No clicks or change of tone

**SECTION 664-600-504**

STEP	ACTION	VERIFICATION
16	Restore A and B TALK keys	Minimum tone
17	Hold plugs of A and B cords firmly in jacks and shake the cords	No clicks or change of tone
18b	If A and B cords are equipped with 309-type plugs — Rotate plugs of A and B cords in jacks through a complete rotation	Minimum tone while plugs are being rotated <i>Note:</i> Scratchy noises heard while plugs are being rotated should be disregarded.
19	Restore G-RV key	
20	Remove A cord from CORD TEST A jacks or C jack of test circuit	
21	Insert TG cord of primary test circuit into T jack of CORD TEST A jacks of test circuit	
22	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero (See Step 23c)
23c	If series unbalance exists — Operate and release, successively, T and R keys of control set	When key associated with defective conductor is operated — If conductor is open — Volume of tone will not change
24	Hold plug of TG cord firmly in jack and shake cord	No clicks or change in tone volume
25	Rotate plug of TG cord in jack through a complete rotation	Minimum tone while plug is being rotated <i>Note:</i> Scratchy noises heard while plug is being rotated should be disregarded.
26	Operate B TALK key	Tone heard in head telephone set
27	Restore B TALK key	No tone in head telephone set
28	Remove B and TG cords from jacks of test circuit	
29a	If A and B cords of primary test circuit are equipped with 241-type plugs — Insert plug of A cord into CORD TEST A jacks of test circuit	
30b	If A and B cords of primary test circuit are equipped with 309-type plugs — Insert plug of A cord into C jack of test circuit	
31	Operate A TALK key	Tone heard in head telephone set

STEP	ACTION	VERIFICATION
32d	If C cords are equipped with 347-type plugs — Insert T and R plugs of C cords into T and R jacks, respectively, of CORD TEST B jacks	
33e	If C cord is equipped with 309-type plug — Insert plug of C cord into D jack of test circuit	
34	Operate A and C keys to VM position	
35	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero
36	If series unbalance exists — Operate and release, successively, T and R keys of control set	When key associated with defective conductor is operated — If conductor is open — Volume of tone will not change
37	Hold plugs of C cords firmly in jacks and shake cord	No clicks or change in tone volume
38	Rotate plugs in jacks through a complete rotation	Minimum tone while plug is being rotated  <i>Note:</i> Scratchy noises heard while plug is being rotated should be dis- regarded.
39	Remove all cords and restore all keys and test equipment to normal	

#### B. Primary Test Circuit — Ringing Key

1	Insert plug of A cord into HOLD jacks of a holding and 20-cycle recall circuit	
2	Operate A TALK key	
3	Operate and release RING key	HOLD lamp in holding and 20-cycle recall circuit lights
4	Remove A cord from HOLD jacks	HOLD lamp extinguished
5	Restore A TALK key	
6	Insert plug of B cord into HOLD jacks of a holding and 20-cycle recall circuit	
7	Operate B TALK key	
8	Operate and release RING key	HOLD lamp in holding and 20-cycle recall circuit lights

**SECTION 664-600-504**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
9	Remove B cord from HOLD jacks	HOLD lamp extinguished
10	Restore B TALK key	

**C. Patching Cords**

**Initial Preparation for Patching Cord Continuity Test**

- 1 Connect test receiver to either REC jack of control set
- 2 Operate control key of control set to BAL position
- 3 Connect jacks 1 and 2 of control set to jacks 1 and 2 of test circuit, respectively, using P3F cords

**Two-Conductor Patch Cord Equipped with Two-Conductor Twin Plugs**

- |     |   |  |
|-----|---|--|
| 4   | Insert one plug of patch cord into CORD TEST A jacks and the other plug into CORD TEST B jacks of test circuit          |  |
| 5   | Move potentiometer of control set from its extreme counterclockwise position to its extreme clockwise position          | Appreciable tone heard in test receiver while potentiometer is near either extreme position                            |
| 6   | Adjust potentiometer of control set for minimum tone in test receiver   | Potentiometer setting approximately zero (See Step 7a)   |
| 7a  | If series unbalance exists —<br>Operate and release, successively, T and R keys of control set                          | When key associated with defective conductor is operated —<br>If conductor is open —<br>Volume of tone will not change |
| 8   | Hold plugs of patch cord firmly in jacks and shake cord   | No change in tone volume   |
| 9   | Remove patch cord from jacks of test circuit  |  |
| 10b | If other patch cords of this type are to be tested —<br>Repeat Steps 4 and 6 through 9 for each patch cord to be tested |  |

**Four-Conductor Cords Equipped with Three-Conductor Twin Plugs**

- 11 Insert one plug of the patch cord to be tested into C and D jacks of test circuit and the other plug into the LP and LP1 jacks of test circuit
- 12 Repeat Steps 5 through 9

STEP	ACTION	VERIFICATION
13b	If other patch cords of this type are to be tested — Repeat Step 11 and then 6 through 9 for each patch cord to be tested	
<b>Single Conductor Patch Cords Equipped with Two-Conductor Single Plugs</b>		
<i>Note:</i> Two cords at a time must be tested.		
14	Insert plugs of one patch cord into T jacks of CORD TEST A and B jacks of test circuit	
15	Insert plugs of other patch cord into R jacks of CORD TEST A and B jacks of test circuit	
16	Move potentiometer of control set from its extreme counterclockwise position to its extreme clockwise position	Appreciable tone heard in test receiver while potentiometer is near either extreme position
17	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero (See Step 18a)
18a	If series unbalance exists — Operate and release, successively, T and R keys of control set	When key associated with defective conductor is operated — If conductor is open — Volume of tone will not change
19	Hold plugs of patch cords firmly in jacks and shake cords	No change in tone volume
20	Rotate each plug in test circuit jacks through a complete rotation	No change in tone volume <i>Note:</i> Scratchy noises heard while plugs are being rotated should be disregarded
21	Remove patch cords under test from jacks of test circuit	
22b	If other patch cords of this type are to be tested — Repeat Steps 14, 15 and 17 through 21 for each cord to be tested	

**Two-Conductor Patch Cords Equipped with Two-Conductor Single Plugs**

23	Insert one plug of patch cord into T jack of CORD TEST A jacks and the other plug into T jack of CORD TEST B jacks of test circuit	
24	Repeat Steps 16 through 21	
25b	If other patch cords of this type are to be tested — Repeat Steps 23 and 17 through 21 for each cord to be tested	

SECTION 664-600-504

STEP	ACTION	VERIFICATION
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**Three-Conductor Patch Cords Equipped with Three-Conductor Single Plugs**

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|-----|--|--|
| 26  | Insert one plug of patch cord into C jack and the other plug into D jack of test circuit                         |  |
| 27  | Repeat Steps 16 through 21   |  |
| 28b | If other patch cords of this type are to be tested— Repeat Steps 26 and 17 through 21 for each cord to be tested |  |

**At Completion of Patching Cord Test**

- |    |  |  |
|----|--|--|
| 29 | Remove all cords and restore all keys and test equipment to normal |  |
|----|--|--|

**D. Secondary Cord Circuit — Continuity**

**Initial Preparation for Secondary Cord Circuit Continuity Test**

- |   |  |   |
|---|--|---|
| 1 | Connect test receiver to either REC jack of control set  |   |
| 2 | Operate control key of control set to BAL position   |   |
| 3 | Connect jacks 1 and 2 of control set to jacks 1 and 2, respectively, of test circuit using P3F cords                 |   |
| 4 | Insert front and rear plugs of secondary cord circuit to be tested into C and D jacks, respectively, of test circuit | Cord circuit supervisory lamps light  |
| 5 | Move potentiometer of control set from its extreme counterclockwise position to its extreme clockwise position       | Appreciable tone heard in test receiver while potentiometer is near either extreme position |

**Series Balance**

- |    |   |  |
|----|---|--|
| 6  | Adjust potentiometer of control set for minimum tone in test receiver                       | Potentiometer setting approximately zero (See Step 8a)   |
| 7  | Operate and restore TALK key  | Minimum tone after key is operated or restored (See Step 8a)<br><i>Note:</i> Tone or click may be heard while key is being operated. |
| 8a | If series unbalance exists — Operate and release, successively, T and R keys of control set | When key associated with defective conductor is operated —<br>If conductor is open —<br>Volume of tone will not change               |

STEP	ACTION	VERIFICATION
<b>Shunt Balance</b>		
9	Operate G-RV key of control set to G	
10	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero
11	Operate and restore TALK key	Minimum tone after key is operated or restored <i>Note:</i> Tone or click may be heard while key is being operated.
12	Operate MON key	Minimum tone Cord circuit supervisory lamps extinguished
13	Restore MON key	Minimum tone Cord circuit supervisory lamps light
14	Hold plugs firmly in C and D jacks and shake cords	No clicks or change in tone volume
15	Rotate plugs in C and D jacks through a complete rotation	Minimum tone while plugs are being rotated <i>Note:</i> Scratchy noises heard while plugs are being rotated should be disregarded.
16	Apply slight pressure in several directions to HOLD key lever and tap lightly on top of key	No clicks or change in tone volume
17	Restore G-RV key	
<b>Split and Ring Keys</b>		
18	Operate TALK key	
19	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero
20	Apply slight pressure in several directions to SPLIT and RING key levers and tap lightly on tops of keys	No clicks or change of tone volume
21	Operate RING key first to front and then to rear and in each case allow it to snap back to normal	No loud clicks in test receiver
22	Operate G-RV key of control set to G	Minimum tone
23	Repeat Step 20	
24	Restore TALK and G-RV keys	

**SECTION 664-600-504**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
<b>Monitor Circuit Balance (Two Secondary Cord Circuits Provided)</b>		
25	Remove cord from D jack of test circuit	
26	Insert either plug of another secondary cord circuit into D jack of test circuit	
27	Operate TALK key of cord circuit connected to C jack	
28	Operate MON and CLOSE 3RD keys of cord circuit connected to D jack	
29	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero (See Step 30a)
30a	If series unbalance exists — Operate and release, successively, T and R keys of control set	When key associated with defective conductor is operated — If conductor is open — Volume of tone will not change
31	Operate G-RV key of control set to G	Minimum tone
32	Restore TALK, MON, CLOSE 3RD, and G-RV keys	
33	Remove cords from C and D jacks	

**At Completion of Secondary Cord Circuit Continuity Test**

34 Remove all cords and restore all keys and test equipment to normal

**E. Secondary Cord Circuit — Ringing Key**

1	Operate control key of control set to BAL	
2	Connect jacks 1 and 3 of control set to jacks 1 and 3, respectively, of test circuit using P3F cords	
3	Operate control key of control set to TST	
4	Insert front and rear plugs of secondary cord circuit to be tested into C and D jacks, respectively, of test circuit	Cord circuit supervisory lamps light
5	Operate TALK key	
6	Operate RING key to front	Front cord supervisory lamp flashes CT1 lamp lights

STEP	ACTION	VERIFICATION
7	Release RING key	Front cord supervisory lamp lights CT1 lamp extinguished
8	Operate RING key to rear	Rear cord supervisory lamp flashes DT2 lamp lights
9	Release RING key	Rear cord supervisory lamp lights DT2 lamp extinguished
10	Remove cords from C and D jacks	Cord circuit supervisory lamps extinguished
11	Remove all cords and restore all keys and test equipment to normal	

#### F. Busy Test Feature

1	Connect head telephone set to telephone jacks of position to be tested	
2	Operate TALK key of idle secondary cord circuit	
3	Touch tip of either plug of cord circuit selected in Step 2 to sleeve of jack 1 of test circuit	Click heard in head telephone set
4	Restore TALK key	
5	Remove head telephone set from position telephone jacks	

#### G. Telephone Circuit

1	Connect head telephone set to telephone jacks of position to be tested	
2	Talk or blow into transmitter of head telephone set	Sidetone heard
3	Insert front and rear plugs of an idle secondary cord circuit into C and D jacks, respectively, of test circuit	Cord circuit supervisory lamps light No tone in head telephone set
4	Operate TALK key	Tone heard in head telephone set
5	Operate MON key	Volume of tone decreases Cord circuit supervisory lamps extinguished
6a	If two secondary cord circuits are provided — Operate TALK key of other secondary cord circuit	No tone
7a	Operate CLOSE 3RD key of cord circuit connected to C and D jacks	Volume of tone same as Step 4 Cord circuit supervisory lamps light

**SECTION 664-600-504**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
8a	Restore MON, CLOSE 3RD and TALK keys	No tone
9	Remove cords from C and D jacks	Cord circuit supervisory lamps extinguished
10	Remove all cords and restore all keys and test equipment to normal	

**H. Lockout Feature (Two Secondary Cord Circuits Provided)**

1	Connect head telephone set to position telephone jacks of position to be tested	
2	Insert front plug of an idle secondary cord circuit into C jack of test circuit	No tone in head telephone set
3	Operate TALK key	Tone heard in head telephone set
4	Restore TALK key	No tone
5	Operate TALK key of another idle secondary cord circuit	No tone
6	Operate TALK key of cord circuit connected to C jack	No tone
7	Operate MON key of cord circuit connected to C jack	No tone
8	Operate TALK key of cord circuit connected to C jack	No tone
9	Restore TALK key of cord circuit selected in Step 5 to normal	Tone heard
10	Operate TALK key of cord circuit selected in Step 5	Tone heard
11	Remove all cords and restore all keys and test equipment to normal	

**I. Splitting Feature**

1	Connect head telephone set to telephone jacks of position to be tested	
2	Insert front plug of an idle secondary cord circuit into C jack of test circuit	Cord circuit supervisory lamp lights
3	Operate TALK key	Tone heard in head telephone set
4	Operate SPLIT key to front	Tone heard
5	Operate SPLIT key to rear	No tone

STEP	ACTION	VERIFICATION
6	Restore SPLIT key	
7	Remove front cord from C jack	Cord circuit supervisory lamp extinguished
8	Insert plug of rear cord of same cord circuit into C jack	Tone heard Cord circuit supervisory lamp lights
9	Operate SPLIT key to rear	Tone heard
10	Operate SPLIT key to front	No tone
11	Remove cord from C jack	Cord circuit supervisory lamp extinguished
12	Remove all cords and restore all keys and test equipment to normal	

#### J. Holding and Splitting Terminations

##### Initial Preparation

1	Connect test receiver to either REC jack of control set	
2	Operate control key of control set to BAL	
3	Connect jacks 1, 2 and 3 of control set to jacks 1, 2 and 3, respectively, of test circuit, using P3F cords	
4	Insert front and rear plugs of secondary cord circuit to be tested into C and D jacks, respectively, of test circuit	Cord circuit supervisory lamps light
5	Operate HOLD key	
6	Operate C-D key of control set to C	
7	Move potentiometer of control set from its extreme counterclockwise position to its extreme clockwise position	Appreciable tone heard in test receiver while potentiometer is near either extreme position

##### Holding Terminations

8	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero
9	Operate C-D key of control set to D	
10	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero
11	Restore HOLD and C-D keys	

**SECTION 664-600-504**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
<b>Splitting Terminations</b>		
12	Operate TALK key	
13	Operate SPLIT key to rear	
14	Operate C-D key of control set to C	
15	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero
16	Operate SPLIT key to front position	
17	Operate C-D key of control set to D	
18	Adjust potentiometer of control set for minimum tone in test receiver	Potentiometer setting approximately zero
19	Remove all cords and restore all keys and test equipment to normal	

**K. Pad Control Simplexes**

1	Operate control key of control set to BAL	
2	Operate G-RV key of control set to G	
3	Connect jacks 1, 2 and 3 of control set to jacks 1, 2 and 3, respectively, of test circuit using P3F cords	
4	Insert either the front or rear plug of an idle secondary cord circuit into C jack of test circuit	Cord circuit supervisory lamp lights
5	Operate TALK key of cord circuit connected to C jack	Cord circuit supervisory lamp extinguished CT1 and CR4 lamps light
6	Operate MON key of cord circuit connected to C jack	CT1 and CR4 lamps extinguished
7	Operate CLOSE 3RD key of cord circuit connected to C jack	Cord circuit supervisory lamp lights
8a	If two secondary cord circuits are provided — Operate TALK key of another idle secondary cord circuit in the position under test	Cord circuit supervisory lamp extinguished CT1 and CR4 lamps light
9	Remove all cords and restore all keys and test equipment to normal	

STEP	ACTION	VERIFICATION
<b>I. Dialing Circuit</b>		
1	Operate control key of control set to BAL	
2	Connect jacks 1 and 3 of control set to jacks 1 and 3, respectively, of test circuit using P3F cords	
3	Insert 309 plug into C jack of test circuit	
4	Operate control key of control set to TST	
5	Insert front or rear plug of an idle secondary cord circuit of the position to be tested into D jack of test circuit	Cord circuit supervisory lamp lights
6	Operate TALK key of cord circuit connected to D jack	
7	Operate DIAL key of position under test to front or rear as required to associate dialing circuit with cord connected to D jack	DT2 and DR5 lamps light DP lamp lights
8	Move dial off normal to any number	
9	Allow dial to return toward normal until DR5 lamp is extinguished and hold dial in this position	DP lamp flashes Cord circuit supervisory lamp flashes
10	Allow dial to return to normal	DR5 lamp lights DP lamp lights Cord circuit supervisory lamp lights
11	Dial digit "O"	DR5 lamp flashes in unison with dial pulses and remains lighted when dial has returned to normal DT2 lamp remains lighted DP lamp and cord circuit supervisory lamp may flash but should be disregarded
12	Move and hold dial to digit "O" position	
13	Restore DIAL key	
14	Allow dial to return to normal	DR5 lamp flashes in unison with dial pulses DT2 lamp remains lighted When dial has returned to normal — DR5, DT2 and DP lamps extinguished Cord circuit supervisory lamp remains lighted

**SECTION 664-600-504**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
15	Remove cord from D jack	Cord circuit supervisory lamp extinguished
16	Remove 309 plug from C jack	
17	Remove all cords and restore all keys and test equipment to normal	

**M. DC Key Pulsing Circuit**

**Initial Preparation for DC Key Pulsing Test**

- 1 Operate control key of control set to BAL
- 2 Connect jacks 1, 2, and 3 of control set to jacks 1, 2, and 3, respectively, of test circuit, using P3F cords
- 3 Insert 309 plug into C jack of test circuit

**Premature Keying Test**

4	Operate control key of control set to TST position	
5	Operate TALK key of any secondary cord circuit in the position to be tested	
6	Insert front or rear plug of cord circuit selected in Step 5 into D jack of test circuit far enough to close sleeve but not far enough to close tip and ring	Cord circuit supervisory lamp lights
7	Operate KP key to front or rear position as required to associate key pulsing circuit with cord connected to D jack	KF or KR lamp lights
8	Operate any numerical key of keyset	S lamp flashes
9	Operate KP key	S lamp extinguished
10	Remove cord from D jack	Cord circuit supervisory lamp extinguished
11	Restore TALK key	

**Registration, Ringing Indication, and Disconnection**

12	Operate control key of control set to LD	
13	Insert front or rear plug of any secondary cord circuit of position to be tested into D jack of test circuit	If test circuit SD-55056-01 is used — Cord circuit supervisory lamp lights If test circuit SD-63971-01 is used — Cord circuit supervisory lamp does not light

STEP	ACTION	VERIFICATION
14	Operate TALK key of cord circuit connected to D jack	
15	Operate KP key to front or rear position as required to associate keyset with cord connected to D jack	KF or KR lamp lights DC lamp, if provided, lights S lamp lights
16	Operate and release, successively, each key of keyset	Lamps in control set light while each key is operated. The sum of the lamp numbers of the lighted lamps will equal the number of the key operated (See Table A)

TABLE A

Keyset Key Number Operated	Control Set Lamps Lighted
1	CT1
2	DT2
3	CT1, DT2
4	CR4
5	DR5
6	CT1, DR5
7	DT2, DR5
8	CT1, DT2, DR5
9	CR4, DR5
0	CT1, CR4, DR5

17	Operate ST key	CT1 and CR4 lamps light
18	Release ST key	CT1 and CR4 lamps extinguished CT1 lamp lights momentarily KF or KR lamp extinguished DC lamp, if provided, extinguished S lamp extinguished  <i>Note:</i> The momentary lighting of the CT1 lamp after the CT1 and CR4 lamps are extinguished shows that an indication has been given to the sender that manual start of ringing will be used.
19	Remove cord from D jack	Cord circuit supervisory lamp extinguished
20	Remove 309 plug from C jack	
21	Remove all cords and restore all keys and test equipment to normal	

#### N. MF Key Pulsing Circuit

1	Operate control key of control set to BAL
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**SECTION 664-600-504**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
2	Connect jack 1 of control set to jack 1 of test circuit, using P3F cord	
3	Insert 309 plug into C jack of test circuit	
4	Connect D jack of AC voltage test set to D jack of test circuit, using P3F cord	
5	Operate control key of control set to TST	
6a	If keyset is arranged for combined DC-MF key pulsing — Operate LD key of AC voltage test set	
7	Connect tip, ring, and sleeve connecting clips of W3M cord to tip, ring, and sleeve cord fasteners, respectively, of a secondary cord circuit	
8	Insert plug of W3M cord into L jack of AC voltage test set	Cord circuit supervisory lamp lights
9	Operate TALK key	
10	While watching AC voltmeter — Operate and hold KP key to front or rear as required to associate keyset with cord connected to L jack	KF or KR lamp lights MF lamp, if provided, lights Momentary kick of AC voltmeter pointer
11a	If keyset is arranged for combined DC-MF key pulsing — Restore LD key of AC voltage test set	
12	Operate SH or LSH, as provided, key of AC voltage test set	
13	With KP key still operated — Operate and hold V key of AC voltage test set to 4	Readings on 4-volt scale of AC voltmeter as follows:  (a) When keyset and distribution circuits are not modified for reduced transmitting level of -3 dbm per frequency — Reading of $1.0 \pm 0.1$ volt  (b) When keyset and distribution circuits are modified for reduced transmitting level of -3 dbm per frequency — Reading of $0.65 \pm 0.1$ volt

STEP	ACTION	VERIFICATION
		<p>(c) When only keyset circuit modified — Reading of <math>0.80 \pm 0.1</math> volt</p> <p>(d) When only distribution circuit modified — Reading of <math>0.85 \pm 0.1</math> volt</p>
14	Release KP key	S lamp lights
15	Operate and release, successively, keyset keys 0 through 9 and ST key	<p>Readings on 4-volt scale of AC voltmeter as follows:</p> <p>(a) When keyset and distribution circuits are not modified — Reading of <math>1.0 \pm 0.1</math> volt</p> <p>(b) When keyset and distribution circuits are modified — Reading of <math>0.65 \pm 0.1</math> volt</p> <p>(c) When only keyset circuit is modified — Reading of <math>0.80 \pm 0.1</math> volt</p> <p>(d) When only distribution circuit is modified — Reading <math>0.85 \pm 0.1</math> volt</p> <p>KF or KR, MF, if provided, and S lamps extinguished on release of ST key</p> <p><i>Note:</i> Unsteady or variable reading may indicate closed key contacts or crosses.</p>
16	Restore SH or LSH and 4 keys of AC voltage test set	
17a	If keyset is arranged for combined DC-MF key pulsing — Operate LD key of AC voltage test set	
18	Operate KP key to front or rear as required to associate keyset with cord connected to L jack	<p>KF or KR lamp lights</p> <p>MF lamp, if provided, lights</p> <p>S lamp lights</p>
19	Restore LD key of AC voltage test set	
20	Operate and hold V key to 4	

**SECTION 664-600-504**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
21	Operate keyset keys, two keys at a time as follows: 1-3, 1-4, 1-8, 2-4, 2-9, 3-5, 3-9, 4-7, 5-8, and 6-9	Meter of AC voltage test set reads zero while any of these pairs of keys are operated
22	Operate ST key	KF or KR, MF, if provided, and S lamps extinguished
23	Remove all cords and restore all keys and test equipment to normal	