

INCOMING REGISTER CIRCUIT
OPERATION AND MISCELLANEOUS TESTS
USING CAMA TEST SET SD-32271-01 (J38913) FOR OPERATION TESTS
STEP-BY-STEP INTERTOLL DIALING OFFICES ARRANGED FOR CAMA

1. GENERAL

1.01 This section describes a method of testing the incoming register circuit SD-32260-01 using CAMA test set SD-32271-01 and the manual test circuit SD-32270-01. It also describes a method of performing miscellaneous tests of the register circuit.

1.02 This section is reissued to:

- (a) Revise Test A to include testing of registers for offices equipped with interchangeable code and 411 code features
- (b) Revise Test B to include guard test of TM timer
- (c) Add Tests E through H which include miscellaneous tests of the incoming register circuit.

This reissue affects the Equipment Test List.

1.03 The tests covered are:

- A. *Registration:*** this test checks the operation of the register.
- B. *Functional Timer:*** The following features of the functional timer (TM) are tested:
 - (1) Permanent seizure
 - (2) Interdigital timing
 - (3) Sender attached timing
 - (4) Register outpulsing timing
 - (5) ∇ Timer guard test. ∇

C. *Double Connection:* This test checks that the incoming register recognizes a double connection in the incoming register link switch.

D. *LA and TM Timers:* This test checks that the timing interval of the LA (link alarm) and TM (time-out) timers are within the limits specified.

E. ∇ *Pretranslator Information Leads:* This test checks the information leads between the register and the pretranslator circuit. It also checks additional TM timer requirements.

F. *Pulse Generator Speed and Percent Break:* This test checks the pulses per second and percent break requirements of the pulse generator.

G. *Resistor Tests:* This test checks the value of the A, B, C, H, HB, HD, LA1-LA4, L, P1-P4, PG, PH, RB0-RB6, T1, TM2, TM3, TM6, TM7, and TRL resistors.

H. *PG1 Relay Checking Network:* This test checks the RC- relay contact checking network against false contact closures.

1.04 Test E *cannot* be performed unless the office is equipped with a pretranslator circuit.

1.05 The register may be arranged for completion of home area or foreign area 411 (information) calls. It can also be equipped with an interchangeable code feature. An interchangeable code is a code that serves as either an office code or an area code. The 411 and interchangeable code features may be provided together or the 411 feature may be provided alone. ∇

1.06 The tests outlined in this section may tend to delay service at the register when they

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are made on a routine basis. Precautions should be taken to avoid adversely affecting traffic.

1.07 The A and TED diodes are to be tested as required per Section 032-173-301.

1.08 The KS-14510 volt-ohm-milliammeter shall be referred to in this section as the VOM.

1.09 *Lettered Steps:* A letter a, b, c, etc, added to a step number in Part 4 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

All Tests

2.01 322A (make-busy) plugs as required.

Tests A, B, C, E and F

2.02 CAMA test set J38913 (SD-32271-01).

2.03 Test circuit SD-32270-01.

2.04 Three testing cords, W20D cord, 20-conductor, 10 feet long, designated A, B, C (for use in connecting test set to test circuit).

2.05 Two patching cords, P3D cord, 3 feet long (3P3C cord), each equipped with two 309 plugs (for use in connecting the test set circuit jacks to the sender and register test jacks).

Tests B and G

2.06 Blocking and insulating tools as required. Use tools and apply as covered in Section 069-020-801.

Test B

2.07 KS-3008 stopwatch or equivalent.

2.08 258-type (make-busy) plugs as required.

Tests C and H

2.09 Tools, two 651D tools (relay contact connector holder for use on wire-spring relays).

2.10 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13A cord) and one KS-6278 connecting clip and one 639A tool (for use in connecting ground to relay contacts).

Test D

2.11 Timing test set J24753A (SD-25707-01).

2.12 Testing cord, W3M cord, 6 feet long, equipped with one 310 plug, one 360A tool, one 360B tool, and one 360C tool (3W4A cord).

Test E and H

2.13 Test receiver 716C equipped with 2W21A cord and two KS-6278 connecting clips.

Test G

2.14 KS-14510 L2 volt-ohm-milliammeter.

Test H

2.15 639A tool (for use in connecting battery to relay contacts).

3. PREPARATION

STEP	ACTION	VERIFICATION
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All Tests

- | | | |
|---|---|--|
| 1 | At trouble ticketer and test frame—
Insert make-busy plug into I REG MB-jack of register being tested. | |
|---|---|--|

Test A

- | | | |
|---|---|--|
| 2 | Patch test circuit TST S1 jack to one of sender C SDR-test jacks. | |
|---|---|--|

Tests A, B, C, E and F

- | | | |
|---|---|--|
| 3 | Patch test set A, B, C jacks to test circuit A, B, C jacks, respectively, using W20D cords. | |
| 4 | Patch test circuit TST IR jack to register I REG T- jack, using P3D cord. | |

4. METHOD

STEP	ACTION	VERIFICATION
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A. Registration

- | | | |
|---|------------------------------------|--|
| 5 | At test set—
Operate START key. | BSY lamp lights until incoming register is seized. |
| 6 | Momentarily operate DC key. | |

Registers Not Having Interchangeable Code or 411 Features Equipped

- | | | |
|----|---|--|
| 7 | Operate CT key. | |
| 8 | When BSY lamp is dark—
Dial digits 0, 1 through 9 in sequence. | After last digit is dialed—
BSY lamp lights until checking sender is seized.
After BSY lamp is extinguished—
Digit 0 displayed on numerical indicator tube. |
| 9 | Momentarily operate DC key for each remaining digit dialed. | Preceding digit retired.
Next digit displayed on tube. |
| 10 | After last digit is displayed—
Momentarily operate DC key. | Digits 0, 7 simultaneously displayed on tube. |
| 11 | After digits 0, 7 displayed on tube—
Momentarily operate DC key. | Digit 1 displayed on tube. |

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STEP	ACTION	VERIFICATION
12	Restore START key.	Digit 1 retired.
13	Operate START key.	BSY lamp momentarily lighted.
14	Momentarily operate DC key.	
15	Repeat Steps 8 through 12, using following sets of digits: 1,1,1,1,1,1,1,1,1,1, 0,0,0,0,0,0,0,0,0,0, 2,1,2,2,2,2,2,2,2,2, 2,2,2,2,2,2,2,2,2,2,	Each set of dialed digits displayed on tube, including 0, 7 simultaneously, ending with digit 1.
16	Restore all keys.	
17a	If no further tests are to be made— Remove all cords.	
18a	Remove make-busy plug from I REG MB- jack.	

Registers Having 411 Feature Equipped and in Operation

19	When BSY lamp is dark— Dial digits 411.	After last digit is dialed— BSY lamp lights and remains lighted until checking sender is seized. After BSY lamp is extinguished— Digit 4 displayed on numerical indicator tube.
20	Momentarily operate DC key for each remaining digit dialed.	Preceding digit retired. Next digit displayed on tube.
21	After last digit is displayed— Momentarily operate DC key.	Digits 0, 7 simultaneously displayed on tube.
22	After digits 0, 7 displayed on tube— Momentarily operate DC key.	Digit 1 displayed on tube.
23	Restore START key.	Digit 1 retired.
24	Restore all keys.	
25a	If no further tests are to be made— Remove all cords.	
26a	Remove make-busy plug from I REG MB- jack.	

STEP	ACTION	VERIFICATION
Registers Having Interchangeable Code and 411 Features Equipped and at Least One Interchangeable Code Assigned—Option V		
27	When BSY lamp is dark— Dial interchangeable code as shown in Test Chart.	After critical timeout (3 to 5 seconds)— Register requests checking sender. BSY lamp lights and remains lighted until checking sender is seized. After BSY lamp is extinguished— First digit of interchangeable code displayed on numerical indicator tube.
28	Momentarily operate DC key for each remaining digit dialed.	Preceding digit retired, next digit displayed on tube.
29	After last digit is displayed— Momentarily operate DC key.	Digits 0, 7 simultaneously displayed on tube.
30	After digits 0, 7 displayed on tube— Momentarily operate DC key.	Digit 1 displayed on tube.
31	Restore START key.	Digit 1 retired.
32	Operate START key.	
33	Momentarily operate DC key.	
34	Repeat Steps 27 through 33 for other 6 digit codes shown on Test Chart.	
35	When BSY lamp is dark— Dial interchangeable code plus 411X (seven digits) with no delay between sixth and seventh digits (See Test Chart).	After last digit dialed— Register requests checking sender immediately. BSY lamp lights and remains lighted until sender seized. After BSY lamp is extinguished— First digit of interchangeable code displayed on numerical indicator tube.
36	Repeat Steps 28 through 33.	
37	When BSY lamp is dark— Dial interchangeable code plus any four digits except 411X. (See Test Chart.)	After critical time-out (3-5 seconds)— Register requests checking sender. BSY lamp lights and remains lighted until sender is seized. After BSY lamp is extinguished— First digit of interchangeable code displayed on numerical indicator tube.
38	Repeat Steps 28 through 33.	
39	Dial interchangeable code plus four digits except 411X. (See Test Chart.)	After critical time-out (3-5 seconds)— Register requests checking sender.

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STEP	ACTION	VERIFICATION
		BSY lamp lights and remains lighted until sender is seized.
40	Dial any digit.	BSY lamp flashes at 120 ipm.
41	Restore START key.	
42	At register— Block nonoperated SA relay.	
43	At test set— Operate START key.	
44	Dial interchangeable code plus four digits except 411X. (See Test Chart.)	After critical time-out (3-5 seconds)— TM timer recycles. After 16-25 seconds— BSY lamp flashes at 120 ipm.
45	Restore START key.	BSY lamp extinguished.
46	Remove blocking tool from SA relay.	
47	Operate START key.	
48	Momentarily operate DC key.	
49	Dial interchangeable code plus 7 digits except 411XXXX. (See Test Chart.)	After last digit is dialed— Register requests checking sender. BSY lamp lights and remains lighted until sender is seized. After BSY lamp is extinguished— First digit of interchangeable code displayed on numerical indicator tube.
50	Repeat Steps 28 through 33.	

**Registers Having 411 Toll Information Code Features
With No Interchangeable Code Features—Option W**

51	Dial NXX 411 (six digits). <i>Note:</i> NXX is any working area code.	After last digit is dialed— Register immediately requests checking sender. BSY lamp lights and remains lighted until sender is seized. After BSY lamp is extinguished— First digit of area code displayed on numerical indicator tube.
52	Repeat Steps 28 through 33.	
53	Dial NXXXXXX (six digits) but not NXX411.	After critical time-out 16-25 seconds— BSY lamp flashes at 120 ipm.

STEP	ACTION	VERIFICATION
54a	If no further tests are to be made— Remove all cords.	
55a	Remove make-busy plug from I REG MB-jack.⚡	
B. Functional Timer		
Permanent Seizure		
5	At test set— Operate START key.	BSY lamp lights until incoming register is seized. If Z option is provided— In 5 to 8 seconds, BSY lamp flashes at 120 ipm. If Y option is provided— In 16 to 25 seconds— BSY lamp flashes at 120 ipm.
6	Restore START key.	BSY lamp extinguished.
Interdigital Timing		
7	At test set— Operate START key.	BSY lamp lights until incoming register is seized.
8	Dial digit 0.	
9a	If Z option is provided— Wait 3 seconds after Step 8 and dial another 0.	BSY lamp remains extinguished between digits. In 5 to 8 seconds after second digit is dialed— BSY lamp flashes at 120 ipm.
10b	If Y option is provided— Wait 12 seconds after Step 8 and dial another 0.	BSY lamp remains extinguished between digits. In 16 to 25 seconds after second digit is dialed— BSY lamp flashes at 120 ipm.
11	Restore START key.	
Sender Attached Timing		
12	At trunk finder frame— Insert 258-type plugs into test and make-busy jacks for both checking senders.	
13	At test set— Operate START key.	BSY lamp lights until incoming register is seized.
14	Dial digit 2 seven times.	BSY lamp lighted. If Z option is provided— In 5 to 8 seconds— BSY lamp flashes at 120 ipm.

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STEP	ACTION	VERIFICATION
		If Y option is provided— In 16 to 25 seconds— BSY lamp flashes at 120 ipm.
15	Restore START key.	BSY lamp extinguished.
16	At trunk finder frame— Remove 258-type plugs from checking senders.	

Register Outpulsing

17	At trouble ticketer and test frame— Patch test circuit TST S1 jack to one of C SDR- test jacks.	
18	At test set— Operate START key.	BSY lamp lights until incoming register is seized.
19	Operate CT key.	
20	Momentarily operate DC key.	
21	Dial digit 2 seven times.	BSY lamp lights until checking sender is seized.
22	Momentarily operate DC key.	Digit 2 displayed on numerical indicator tube.
23	Restore CT key.	In 5 to 8 seconds— BSY lamp flashes at 120 ipm.
24	Restore START key.	BSY lamp extinguished.

Timer Guard Test

25	Block RA relay nonoperated.	
26	Block operated DCK and HDZ relays.	After 3 to 5 seconds— TM relay operated.
27	Remove blocking tools from RA, DCK, and HD2 relays.	
28c	If no further tests of incoming register are to be made— At trouble ticketer and test frame— Remove all patching cords.	
29c	Remove make-busy plug from I REG MB-jack.	

STEP	ACTION	VERIFICATION
C. Double Connection		
5	At test circuit— Connect ground to fixed contact 12 of M relay, using 893 cord.	
6	Operate START key.	BSY lamp lights, remains lighted.
7	Remove ground from M relay contact.	BSY lamp extinguished.
8	Restore START key.	
9	Remove make-busy plug from I REG MB-jack.	
D. LA and TM Timers		
2	Connect timing test set or equivalent to incoming register to be tested, using W3M cord, as shown on circuit requirement table for LA and TM timing intervals.	Timing requirement table specifications are met.
3	Upon completion of tests, remove test cord from register.	
4	Remove make-busy plug from register I REG MB-jack.	
E. Pretranslator Information Leads		
5	At test set— Operate START key.	BSY lamp lights and remains lighted until register is seized.
6	When BSY lamp is extinguished— Dial a three digit code (except N11) as shown on Test Chart.	BSY lamp remains extinguished.
	<i>Note:</i> N11 is a service code such as 411, 911, etc.	
7	Dial any digit as fourth digit.	At register AC, IC, or OC relay operates.
8	Restore START key.	
9	Repeat Steps 5 through 8 using codes shown on Test Chart.	
Open Pretranslator Information Leads		
10	At register— Block AC relay nonoperated.	

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STEP	ACTION	VERIFICATION
11	At test set— Operate START key.	BSY lamp lights and remains lighted until register is seized.
12	When BSY lamp is dark— Dial an area code plus 411 six digits. (See Test Chart.)	At register— OC, IC, and PRT relays operated. After critical time-out (3 to 5 seconds) Register requests checking sender. At test set— First digit of area code displayed on numerical indicator tube. At pretranslator— Office alarm sounds. MN- lamp flashes. Pretranslator number, register location, and area code displayed on lamps (except if previous display has not been extinguished).
13	At pretranslator frame— Momentarily operate AR key.	Office alarm retired. Display lamps extinguishd.
14	At test set— Restore START key.	
15	At register— Remove blocking tool from AC relay and block OC relay nonoperated.	
16	At test set— Operate START key.	BSY lamp lights and remains lighted until register is seized.
17	When BSY lamp is dark— Dial an office code plus four digits except 411X. (See Test Chart.)	At register— AC, IC, and PRT relays operated. After critical time-out (3-5 seconds)— Register requests checking sender. At test set— First digit of office code displayed on numerical indicator tube At pretranslator— Office alarm sounds. MN- lamp flashes. Pretranslator number, register location, and office code displayed on lamps (except if previous display has not been extinguished).
18	At pretranslator frame— Momentarily operate AR key.	Office alarm retired. Display lamps extinguished.
19	At test set— Restore START key.	

STEP	ACTION	VERIFICATION
20	At register— Remove blocking tool from OC relay and block IC relay nonoperated.	
21	At test set— Operate START key.	BSY lamp lights and remains lighted until register is seized.
22	Dial interchangeable code plus four digits except 411X.	At register— AC, OC, and PRT relays operated. At test set— First digit of interchangeable code displayed on numerical indicator tube. At pretranslator— Office alarm sounds. MN- lamp flashes. Pretranslator number, register location, and interchangeable code displayed on lamps (except if previous display has not been extinguished).
23	At pretranslator frame— Momentarily operate AR key.	Office alarm retired. Display lamps extinguished.
24	At test set— Restore START key.	
25	At register— Remove blocking tool from IC relay.	

Falsely Operated Pretranslator Information Relay

26	At register— Block AC relay operated.	
27	At test set— Operate START key.	BSY lamp lights and remains lighted until register is seized. When register is seized— BSY lamp flashes at 120 ipm. At trouble ticketer and alarm frame— Associated LA lamp lights and alarm sounds.
28	Restore START key.	BSY and LA lamps extinguished. Office alarm retired.
29	At register— Remove blocking tool from AC relay and block operated OC relay.	
30	At test set— Operate START key.	BSY lamp lights and remains lighted until register is seized. When register is seized— BSY lamp flashes at 120 ipm.

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STEP	ACTION	VERIFICATION
		At trouble ticketer and alarm frame— Associated LA lamp lights and alarm sounds.
31	Restore START key.	BSY and LA lamps extinguished, Office alarm retired.
32	At register— Remove blocking tool from OC relay and block operated IC relay.	
33	At test set— Operate START key.	BSY lamp lights and remains lighted until register is seized. When register is seized— BSY lamp flashes at 120 ipm. At trouble ticketer and alarm frame— Associated LA lamp lights and alarm sounds.
34	Restore START key.	BSY and LA lamps extinguished. Office alarm retired.
35	At register— Remove blocking tool from IC relay.	

Pretranslator Unavailable

36	At register— Insulate contact 9M of PST relay.	
37	At test set— Operate START key.	BSY lamp lights and remains lighted until register is seized.
38	When BSY lamp is dark— Dial an office code plus 411 (six digits).	After critical timeout (3 to 5 seconds)— Register request checking sender. BSY lamp lights and remains lighted until sender is seized. First digit of office code displayed on numerical indicator tube.
39	Restore START key.	Digit retired from numerical indicator tube.
40	Operate START key.	BSY lamp lights and remains lighted until register is seized.
41	When BSY lamp is dark— Dial an office code plus four digits (except 411X)	After critical timeout (3 to 5 seconds)— Register requests checking sender (BSY lamp lights and remains lighted until sender is seized.) First digit of office code displayed on numerical indicator tube.
42	Restore START key.	Digit retired from numerical indicator tube.

STEP	ACTION	VERIFICATION
43	At register— Remove insulator from contact 9M of PST relay.	
Check of PST and HDC Leads		
44	Using 716C test receiver— Apply -48V battery to 13 of B TS.	Pretranslator circuit seized. At register— HD1 relay operates.
45	Remove -48V from 13 of B TS.	At pretranslator— Office alarm sounds. Register location displayed on lamps. Pretranslator circuit releases— HD1 relays releases.
46	At pretranslator frame— Momentarily operate AR key.	
47a	If no further tests are to be made— Remove all patching cords.	
48a	Remove make-busy plug from I REG MB-jack.	
F. Pulse Generator Speed and Precent Break		
5	At CAMA test set— Operate START key.	BSY lamp lights until incoming register is seized.
6	After BSY lamp is extinguished— Restore START key.	
7	At register— Perform percent break and pulses-per-second tests, using Section 040-009-501 and circuit requirements table.	
8a	If no further tests are to be made— Remove all patching cords.	
9a	Remove make-busy plug from I REG MB-jack.	
G. Resistor Tests		
2	At VOM— Set range switch to 60 DC VOLTS position.	
3	At register— Connect VOM test leads to terminals of RB0 resistor.	VOM meter indicates -33.3 ± 1.5 volts on 60 scale.
4	Remove VOM test leads from resistor.	VOM indicates 0.

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STEP	ACTION	VERIFICATION
5	Repeat Steps 3 and 4 for RB1-RB6 resistors.	
6	At VOM— Set range switch to X1000.	
7	Short circuit test leads of VOM and adjust OHMS ADJ potentiometer until meter on VOM indicates 0 on OHMS scale.	
8	At register fuse and alarm panel— Remove A, D, and E -48 volt fuses and +130V fuse.	
9	Using VOM— At register— Connect test leads across and measure resistance of A, B, C, HB, LA2, P1, P2, and TM2 resistors.	VOM meter indicates 100 ± 25 on OHMS scale.
10	At VOM— Set range switch to X10 ohms.	
11	Short circuit test leads of VOM and adjust ADJ OHMS potentiometer until meter on VOM indicates 0 on OHMS scale.	
12	At register— Using VOM— Connect test leads across resistors shown in Table A.	VOM meter indicates as shown in Table A.
13	At VOM— Set range switch to X1 OHMS.	
14	At register— Using VOM— Connect test leads across resistors shown in Table B.	VOM meter indicates as shown in Table B.
15	After last resistor has been tested— At registers fuse and alarm panel— Replace A, D, E, and +130 volt fuses.	
16a	If no further tests are to be made— Remove all patching cords.	
17a	Remove make-busy plug from I REG MB-jack.	

STEP	ACTION	VERIFICATION
H. PG1 Relay Checking Network		
2	At register— Remove relay covers from RC0 and SA relays, and replace with 651D tools.	
3	Using 893 cord — Connect ground to fixed contact 5 of SA relay.	
4	Remove KS-6278 connecting clip from white lead of 716C test receiver and replace with 639A tool.	
5	Connect black lead of 716C receiver to —48V battery.	
6	Momentarily connect white lead of 716C receiver to fixed contact 8 of RC0 relay.	Click heard in 716C receiver.
7	Insulate 4B of RC7 relay.	
8	Connect white lead of 716C receiver to fixed contact 8 of RC0 relay.	No click heard in 716C receiver.
9	Momentarily operate(manually) RC0 relay.	Click heard in 716C receiver.
10	Repeat Step 9 for RC1, RC2, RC4, and RC7 relays.	Click heard in 716C receiver for each relay operated.
11	Block operated RC0 and RC1 relays.	No click heard in 716C receiver.
12	Momentarily operate (manually) ST relay.	Click heard in 716C receiver
13	Repeat Step 12 for RC2, RC4, and RC7 relays.	Click heard in 716C receiver.
14	Remove blocking tool from RC0 relay and block operated RC2 relay.	
15	Momentarily operate (manually) ST relay.	Click heard in 716C receiver.
16	Repeat Step 15 for RC4 and RC7 relays.	Click heard in 716C receiver.
17	Remove blocking from RC1 relay and block operated RC4 relay.	
18	Momentarily operate (manually) ST relay.	Click heard in 716C receiver.
19	Repeat Step 18 for RC7 relay.	Click heard in 716C receiver.
20	Remove blocking tool from RC2 relay and block operated RC7 relay.	

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STEP	ACTION	VERIFICATION
21	Momentarily operate (manually) ST relay.	Click heard in 716C receiver.
22	Remove insulator from fixed contact 4 of RC7 relay.	
23	Remove relay blocking tools from RC4 and RC7 relays.	
24	Remove 716C receiver test lead connections.	
25	Replace RC0 and SA relay covers.	
26	At trouble ticketer and test frame— Remove make-busy plug from I REG MB-jack.♦	

◆TEST CHART◆

TEST AND STEP	NO. DIGITS DIALED	CALLED NUMBER INFORMATION										SEE NOTES
		AREA CODE			OFFICE CODE			TERMINATING DIGITS				
		1ST DIGIT	2ND DIGIT	3RD DIGIT	1ST DIGIT	2ND DIGIT	3RD DIGIT	TH-	H-	T-	H-	
A27	6	X	X	X	4	1	1					1
A34	6	4	5	9	4	1	1					
	6	5	9	4	4	1	1					
	6	9	4	5	4	1	1					
A35	7				X	X	X	4	1	1	—	1,2
A37,39,42	7				X	X	X	—	—	—	—	1,2
A49	10	X	X	X	N	X	X	—	—	—	—	1,3
E6	3				Z	Z	Z	—				2,4
E9	3	N	X	X	—							2,3,5
	3				N	X	X	—				2,3,6
	3	X	X	X	—							1,2,7
E12	6	N	X	X	4	1	1					3
E17	7				N	X	X	—	—	—	—	2,3
E22	7				X	X	X	—	—	—	—	1,2

Notes:

1. XXX represents a working interchangeable code.
2. A dash represents any digit.
3. NXX represents any working office or area code.
4. ZZZ represents any working code.
5. AC relay operates.
6. OC relay operates.
7. IC relay operates.

TABLE A

RESISTOR UNDER TEST	VOM INDICATION ON OHMS SCALE
HD	27 ± 1.5
L	21 ± 1.0
LA1	100 ± 25.0
LA3	100 ± 25.0
PH	100 ± 2.0
T1	44 ± 3.0
TM3	100 ± 25.0
TM6	100 ± 25.0
TM7	180 ± 10.0
TRL	50 ± 3.0

TABLE B

RESISTOR UNDER TEST	VOM INDICATION ON OHMS SCALE
H	82 ± 10.0
LA4	100 ± 1.5
P3	37 ± 2.0
P4	37 ± 2.0
PG	50 ± 3.0