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COMPLETING MARKER TESTS—PART 3
USING OFFICE TEST FRAME TEST CIRCUIT SD-27633-01 (J23260)
NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section is Part 3 of a series of sections for marker tests previously covered in Section 218-423-501.

1.02 This issue affects Equipment Test Lists.

1.03 The tests covered are:

**L. Called Line Ground Test
Feature—GT Relay Hold Test:**

This test checks the called line ground test feature under the most adverse operating conditions.

3

M. Plug-Up Feature—Non-PBX Line:

This test checks that the marker recognizes a non-PBX line placed on plug-up service.

5

N. Plug-Up Feature—PBX Line: This test checks that the marker recognizes a PBX line placed on plug-up service.

6

**O. Nonallotted PBX Group Preference
Feature:** This test checks that the marker hunts for an idle line when all

the PBX lines are within one tens block.
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**P. PBX Group—End of Block Hunting
Feature:**

This test checks that the marker hunts for an idle line in a subsequent tens block when all the lines in the first tens block are found busy.
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9

PAGE

1.04 Lettered Steps: A letter a, b, c, etc, added to a step number in Part 3 or 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 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 listed in Table A. The details of each item are covered in the paragraph indicated by the number in parentheses.

2.02 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord). (Use with tools specified in 2.05 through 2.07.)

TABLE A

APPARATUS	TESTS				
	L	M	N	O	P
Office Test Frame (OTF)	1	1	1	1	1
Trouble Indicator and Connector Circuit (TIC)	1	1	1	1	1
322A (make-busy) Plug	✓	✓		✓	
Cord (2.02)	✓	✓	✓	✓	
Diode (2.03)	✓			✓	
Tools (2.04)	✓			✓	
Tool (2.05)					
Tool (2.06)	✓	✓			
Tool (2.07)	✓	✓		✓	
Resistor (2.08)	1				
Resistor (2.09)	1				
Resistor (2.10)		1			

✓ As Required

2.03 420J diode.

Note: Polarity of diode is indicated on the body of the diode as shown in Fig. 1.



Fig. 1

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

2.05 624A (terminal connector) tools (used for making test connections to winding terminals of wire-spring-type relays).

3. PREPARATION

STEP	ACTION	VERIFICATION
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All Tests

1	At OTF— Restore all keys and switches.	
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2.06 419A (test connector) tools (used for making test connection to contact terminals of relays).

2.07 KS-6278 connecting clips (used for making connection to battery and ground terminals and diodes).

2.08 7570-ohm, 106A resistor or equivalent.

2.09 11,300-ohm, 106A resistor or equivalent.

2.10 164-ohm, 106A resistor or equivalent.

STEP	ACTION	VERIFICATION
2	Set L-L switch to 0.	
3	Set PS switch to 11/56.	
4a	If TOUCH-TONE® dialing is desired— Operate TT key.	
4. METHOD		
L. Called Line Ground Test Feature—GT Relay Hold Test		
5	At jack, lamp, and key circuit— Insert make-busy plug into M_C_MB jack of marker under test.	
6	At OTF— Operate OTL, 7D, REC, MCB keys.	
7	Set A through G DIAL switches to select intraoffice code and any test line number which is an individual line.	
8	Set CST, CSU switches for class of service having access to route selected.	
9	Operate MKR_ key for marker under test.	
10	At marker— Connect 7570-ohm resistor from 12M of GT1 relay to ground.	
11b	If TR2 key is not provided at OTF— At marker— Connect positive side of diode to upper winding terminal of OR relay and negative side to upper winding terminal of TR2 relay.	
12b	Block nonoperated HTR relay.	
13c	If TR2 key is provided at OTF— Operate TR2 key.	
14	At TIC— Momentarily operate RLS key.	All lamps extinguished.
15	At OTF— Operate ST key.	At TIC— DR_, GT5 lamps lighted. Call completed to selected test line.
16	Restore ST key.	

SECTION 218-423-503

STEP	ACTION	VERIFICATION
17	At TIC— Momentarily operate RLS key.	All lamps extinguished.
18	At jack, lamp, and key circuit— Operate CGT key.	
19	At marker— Remove blocking tool from HTR relay.	
20	At OTF— Operate ST key.	At TIC— No display registered.
21	Restore ST key.	
22	At marker— Remove resistor from GT1 relay and ground.	
23	Connect 11,300-ohm resistor from 12M of GT1 relay to ground.	
24	At jack, lamp, and key circuit— Restore CGT key.	
25	At OTF— Operate ST key.	At TIC— No display registered.
26	Restore ST key.	
27	At marker— Remove resistor from GT1 relay and ground.	
28	At OTF— Set D through G DIAL switches to select any number which is a PBX line.	
29	At marker— Connect 7570-ohm resistor between 11M and 12M of GT1 relay.	
30	At OTF— Operate ST key.	At TIC— DR., GT5 lamps lighted.
31	Restore ST key.	
32	At TIC— Momentarily operate RLS key.	All lamps extinguished.
33b	If TR2 key is not provided at OTF— At marker— Remove diode from OR, TR2 relays.	

STEP	ACTION	VERIFICATION
2	Set L-L switch to 0.	
3	Set PS switch to 11/56.	
4a	If TOUCH-TONE® dialing is desired— Operate TT key.	
4. METHOD		
L. Called Line Ground Test Feature—GT Relay Hold Test		
5	At jack, lamp, and key circuit— Insert make-busy plug into M_C_MB jack of marker under test.	
6	At OTF— Operate OTL, 7D, REC, MCB keys.	
7	Set A through G DIAL switches to select intraoffice code and any test line number which is an individual line.	
8	Set CST, CSU switches for class of service having access to route selected.	
9	Operate MKR_ key for marker under test.	
10	At marker— Connect 7570-ohm resistor from 12M of GT1 relay to ground.	
11b	If TR2 key is not provided at OTF— At marker— Connect positive side of diode to upper winding terminal of OR relay and negative side to upper winding terminal of TR2 relay.	
12b	Block nonoperated HTR relay.	
13c	If TR2 key is provided at OTF— Operate TR2 key.	
14	At TIC— Momentarily operate RLS key.	All lamps extinguished.
15	At OTF— Operate ST key.	At TIC— DR_, GT5 lamps lighted. Call completed to selected test line.
16	Restore ST key.	

SECTION 218-423-503

STEP	ACTION	VERIFICATION
17	At TIC— Momentarily operate RLS key.	All lamps extinguished.
18	At jack, lamp, and key circuit— Operate CGT key.	
19	At marker— Remove blocking tool from HTR relay.	
20	At OTF— Operate ST key.	At TIC— No display registered.
21	Restore ST key.	
22	At marker— Remove resistor from GT1 relay and ground.	
23	Connect 11,300-ohm resistor from 12M of GT1 relay to ground.	
24	At jack, lamp, and key circuit— Restore CGT key.	
25	At OTF— Operate ST key.	At TIC— No display registered.
26	Restore ST key.	
27	At marker— Remove resistor from GT1 relay and ground.	
28	At OTF— Set D through G DIAL switches to select any number which is a PBX line.	
29	At marker— Connect 7570-ohm resistor between 11M and 12M of GT1 relay.	
30	At OTF— Operate ST key.	At TIC— DR., GT5 lamps lighted.
31	Restore ST key.	
32	At TIC— Momentarily operate RLS key.	All lamps extinguished.
33b	If TR2 key is not provided at OTF— At marker— Remove diode from OR, TR2 relays.	

STEP	ACTION	VERIFICATION
34c	If TR2 key is provided at OTF— Restore TR2 key.	
35	At jack, lamp, and key circuit— Operate CLPT key.	
36	At OTF— Operate ST key.	At TIC— No display registered.
37	Restore ST key.	
38	At jack, lamp, and key circuit— Restore CLPT key.	
39	At marker— Remove resistor from GT1 relay.	
40	Connect 11,300-ohm resistor from 11M to 12M of GT1 relay.	
41	At OTF— Operate ST key.	At TIC— No display registered.
42	Restore ST key.	
43	At marker— Remove resistor from GT1 relay.	
44	At jack, lamp, and key circuit— Remove make-busy plug from M_C_MB jack.	
45	At OTF— Restore all keys and switches.	

M. Plug-Up Feature—Non-PBX Line

5	At jack, lamp, and key circuit— Insert make-busy plug into M_C_MB jack of marker under test.
6	At OTF— Operate OTL, 7D, MCB keys.
7	Set CST, CSU switches for class of service having access to route selected.
8	Set A through G DIAL switches to select intraoffice code and any test line number which is a non-PBX line.
9	Operate MKR_ key for marker under test.

SECTION 218-423-503

STEP	ACTION	VERIFICATION
10	At horizontal MDF— Connect 164-ohm resistance battery to ring side of test line number selected.	
11	Connect ground to tip side of test line number selected.	
12	At OTF— Operate ST key.	Call completed to trouble intercept trunk.
13	Restore ST key.	Connection released.
14	At horizontal MDF— Remove test connections from tip and ring of test line number.	
15	At jack, lamp, and key circuit— Remove make-busy plug from M_C_MB jack.	
16	At OTF— Restore all keys and switches.	

N. Plug-Up Feature—PBX Line

5	Select from office records an unassigned directory number.	
6	At OTF— Operate OTL, 7D, MCB keys.	
7	Set A through G DIAL switches to select intraoffice code and directory number selected.	
8	Set CST, CSU switches for class of service having access to route selected.	
9	Operate MKR_ key for marker under test.	
10	At number group frame— Connect L_ terminal of unassigned directory number to any LL_ terminal.	
11	At OTF— Operate TLK key.	
12	Operate ST key.	Call completed to trouble intercept operator.
13	Restore ST key.	Connection released.
14	At number group frame— Remove connection from L_, LL_ terminals.	

STEP	ACTION	VERIFICATION
15	At OTF— Restore all keys and switches.	
O. Nonallotted PBX Group Preference Feature		
5	Select from office records a nonallotted PBX group which has the largest number of lines in one tens block.	
6	At OTF— Operate OTL, 7D, MCB keys.	
7	Set CST, CSU switches for class of service having access to route selected.	
8	Operate CB, PBX2 keys.	
9	Set A through G DIAL switches to select intraoffice code and lowest directory number in selected nonallotted PBX group.	
10	Operate MKR_ key for marker under test.	
11	Operate S_ keys corresponding to lowest and next higher units digit of nonallotted PBX group directory number.	
12	At TIC— Momentarily operate RLS key.	All lamps extinguished.
13	At OTF— Operate ST key.	At TIC— DR_, FUT_, VGT_, HGT_, VFT_ lamps lighted for line location associated with lower operated S_ key.
14	At OTF— Restore ST key.	
15	At TIC— Momentarily operate RLS key.	All lamps extinguished.
16	At OTF— Restore S_ keys.	
17	Repeat Steps 11 through 13, applying reference to first and second units digits to two consecutive units digits (second and third, third and fourth, etc, as required) until last units digit of nonallotted PBX directory number has been referred to as a second units digit.	

SECTION 218-423-503

STEP	ACTION	VERIFICATION
18	Operate S_ key corresponding to highest units digit of nonallotted PBX group directory number.	
19	Repeat Steps 12 through 15 for highest units digit.	Verification is same except FUT_, VGT_, HGT_, VFT_ lamps lighted for line location associated with operated S_ key.
20	At jack, lamp, and key circuit— Insert make-busy plug into M_C_MB jack of marker under test.	
21b	If TR2 key is not provided at OTF— At marker frame— Connect positive side of diode to upper winding terminal of OR relay and negative side to upper winding terminal of TR2 relay.	
22b	Block nonoperated XTRK relays.	
23c	If TR2 key is provided at OTF— Operate TR2 key.	
24	Repeat Steps 11 through 19, applying reverse order of reference to units digits and operated S_ key, starting with highest and next lower units digit.	Verification is same except FUT_, VGT_, HGT_, VFT_ lamps lighted for line location associated with higher operated S_ key.
25b	If TR2 key is not provided at OTF— At marker— Remove diode from OR, TR2 relays.	
26b	Remove blocking tool from XTRK relay.	
27	At OTF— Restore CB key.	
28	Restore S_ key.	
29c	If TR2 key is provided at OTF— Restore TR2 key.	
30d	If nonallotted PBX group has less than ten line numbers— Operate S_ key corresponding to any units digit not associated with PBX group.	
31d	Operate ST key.	Busy tone heard.
32d	Restore ST key.	Tone silenced.
33d	Restore S_ key.	

STEP	ACTION	VERIFICATION
34	Restore all keys and switches.	
P. PBX Group—End of Block Hunting Feature		
5	Select from office records a PBX group which has more than one tens block.	
6	At OTF— Operate OTL, 7D, MCB keys.	
7	Set CST, CSU switches for class of service having access to route selected.	
8	Operate CB, PBX2 keys.	
9	Set A through G DIAL switches to select intraoffice code and highest directory number in lower tens block.	
10	Operate MKR_ key for marker under test.	
11	Operate S_ key corresponding to units digit of first directory line number of next higher tens block.	
12	At TIC— Momentarily operate RLS key.	All lamps extinguished.
13	At OTF— Operate ST key.	At TIC— DR_, FUT_, VGT_, HTG_, VFT_ lamps lighted for line location associated with first line number in next higher tens block.
14	At OTF— Restore ST key.	
15	Restore S_ key.	
16	At TIC— Momentarily operate RLS key.	All lamps extinguished.
17b	If PBX group has more than two tens blocks— Repeat Steps 9 through 16 for each additional tens block.	
18	At OTF— Restore all keys and switches.	



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