COMPLETING MARKER TESTS—PART 2
USING OFFICE TEST FRAME TEST CIRCUIT SD-27633-01 (J23260)
NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section is Part 2 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:

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G. Junctor Subgroup Selection Feature: This test checks the operation of the junctor subgroup sequence (JSQ0-5) and step position (STP1-2) relays. . . 3

H. Channel Preference Feature: This test checks the preference and selection of a channel by the marker. 5

I. Reverting Call Feature: This test checks that the marker completes a call to a called customer on the same line as the calling customer. 7

J. False Cross and Ground Test Feature—FCG Relay: This test checks the marker false cross and ground test feature. It also checks that the marker cancels this test on calls from PBX customers and under heavy traffic conditions. 8

K. Continuity Test Feature—GT Relay Operate and Release Feature: This test checks the linkage continuity test feature of the marker and the operate and release of the ground test (GT) relay. 9

1.04 ***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 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.

1.05 In test H, when the last channel is made busy on a line link frame, ***all*** calls to and from that frame are blocked.

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 2.09 through 2.13)

TABLE A

APPARATUS	TESTS				
	G	H	I	J	K
Office Test Frame (OTF)	1	1	1	1	1
Trouble Indicator and Connector Circuit (TIC)	1		1	1	1
322A (make-busy) Plug	√	√		√	√
329A (make-busy) Plug	√	√			
351C (make-busy) Plug		√			
32A Test Set		√			
Cord (2.02)				√	√
Diode (2.03)		√			√
Resistor (2.04)				1	
Resistor (2.05)				1	
Resistor (2.06)					1
Resistor (2.07)					1
Tools (2.08)		√		√	√
Tool (2.09)					√
Tool (2.10)					√
Tool (2.11)				√	√
Tool (2.12)				√	
Tool (2.13)				√	

√ 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 68,000-ohm, 145A resistor or equivalent.

2.05 30,000-ohm, 106A resistor or equivalent.

2.06 130,000-ohm 145A resistor or equivalent.

2.07 173,000-ohm, 145A resistor or equivalent.

2.08 Blocking and insulating tools as required. Use tools and apply as covered in section 069-020-801.

2.09 624A (terminal connector) tools (used for making test connections to winding terminals of wire-spring-type relays).

2.10 419A (test connector) tools (used for making test connections to contact terminals of relays).

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

2.12 651D (relay contact connector holder) tools (used for holding relay contact connector tools when making test connections to fixed contacts of wire-spring-type relays).

2.13 639A (relay contact connector) tools (used in conjunction with 651D tools).

3. PREPARATION

STEP	ACTION	VERIFICATION
All Tests		
1	At OTF— Restore all keys and switches.	
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

STEP	ACTION	VERIFICATION
G. Junctor Subgroup Selection Feature		
5	At jack, lamp, and key circuit— Insert 322A make-busy plug into M_C_MB jack of marker under test.	
6	Select from office records an outgoing trunk.	
7	At OTF— Operate FS_, ODD or EVEN keys and set TS switch for access to selected trunk.	
8	Operate OTL, CH, 7D, REC, OGT, MCB keys.	
9	Set CST, CSU switches for class of service having access to route selected.	
10	Set A through G DIAL switches for outgoing trunk route and any test line number in called office.	
11	Operate MKR_ key for marker under test.	
12	Operate STP1 key.	
13	Set JSQ switch to 0.	

STEP	ACTION	VERIFICATION
14	At OTF— Operate ST key.	At TIC— JG_ lamp lighted as indicated in Table B. At OTF— Call completed to test line number.
15	At OTF— Restore ST key.	
16	At TIC— Momentarily operate RLS key.	All lamps extinguished.
17	Set JSQ switch to 1 through 5 in sequence and repeat Steps 13 through 15 for each position.	At TIC— JG_ lamps lighted in sequence as indicated in Table B.
18	At OTF— Operate STP2 key.	
19	Repeat Steps 13 through 16.	At TIC— JG_ lamps lighted as indicated in Table B.
20	At jack, lamp, and key circuit— Remove make-busy plugs from M_C_MB jack.	
21	At TIC— Operate RLS key.	All lamps extinguished.
22	At OTF— Restore all keys and switches.	

TABLE B

JUNCTOR SUBGROUP SELECTED

NUMBER OF TRUNK LINK FRAMES	JUNCTOR STEP POSITION (STP1 or STP2)	JUNCTOR SEQUENCE (JSQ-)					
		0	1	2	3	4	5
2	1	JG0	JG1	JG2	JG0	JG1	JG2
2	2	JG3	JG4	JG3	JG4	JG3	JG4
3	1	JG0	JG1	JG2	JG0	JG1	JG2
3	2	JG3	JG3	JG3	JG3	JG3	JG3
4	1	JG0	JG1	JG0	JG1	JG0	JG1
4	2	JG2	JG2	JG2	JG2	JG2	JG2
5	1	JG0	JG1	JG0	JG1	JG0	JG1
5	2	JG1	JG0	JG1	JG0	JG1	JG0

STEP	ACTION	VERIFICATION

H. Channel Preference Feature

Caution: Refer to 1.05.

Note: Generally, channel preference for first trial is in numerical sequence 0 through 9 and for second trial 5 through 9 and then 0 through 4. However, if marker cross-connections for this preference are not used, channel preference for first trial is 5 through 9 and then 0 through 4 and for second trial 0 through 9.

5 At jack, lamp, and key circuit—
Insert 322A make-busy plug into M_C_MB jack of marker under test.

6 Select from office records an outgoing trunk.

7 At OTF—
Set CST, CSU switches for class of service having access to route selected.

8 Set A through G DIAL switches for outgoing trunk route and any test line number in called office.

9 Operate OTL, CH, 7D, REC, MCB keys.

10 Operate MKR_ key for marker under test.

11 Set JSQ switch to 0.

Note 1: When a channel is to be checked and its junctor is found plugged busy before start of this test, proceed to next preferred channel for checking operation of junctor hold magnet. Upon completion of this test, ***do not*** restore to service junctors which were plugged busy before the start of this test. These channels should be checked at another time.

Note 2: When a channel is busy on a service call, proceed to the next preferred channel for checking operation of junctor hold magnet. If busy channel becomes idle during the progress of this test, it immediately regains its position in the preference chain; however, if it is still busy upon completion of this test, it should be checked at another time.

STEP	ACTION	VERIFICATION
12	At marker under test— Insert plug of 32A test set into RC jack.	
13	Momentarily operate white (ST) button on 32A test set.	CH_ relay (of most preferred idle channel for first trial) operated momentarily.
14	Momentarily operate red (RL) button on 32A test set.	
15	At line link frame on which OTF originating test line appears— Insert make-busy plug into JS_ jack corresponding to CH_ relay operated in Step 13.	
16	Repeat Steps 13 through 15 until the least preferred CH_ relay has been operated.	CH_ relay (of next higher preferred idle channel for first trial) operated momentarily.
17	Remove make-busy plugs from JS_ jacks.	
18b	If TR2 key provided at OTF— Operate TR2 key.	
9c	If TR2 key is not provided— At marker under test— Block nonoperated XTRK relay.	
20c	Connect positive side of diode to upper winding terminal of OR relay and negative side to upper winding terminal of TR2 relay.	
21	Momentarily operate white (ST) button on 32A test set.	CH_ relay (of most preferred idle channel for second trial) operated momentarily.
22	Momentarily operate red (RL) button on 32A test set.	
23	At line link frame on which OTF originating test line appears— Insert make-busy plug into JS_ jack corresponding to CH_ relay operated in Step 21.	
24	Repeat Steps 21 through 23 until the least preferred CH_ relay has been operated.	CH_ relay (of next higher preferred idle channel for second trial) operated momentarily.
25	Remove make-busy plugs from JS_ jacks.	
26c	If TR2 key is not provided at OTF— At marker— Remove diode from OR, TR2 relays.	
27c	Remove blocking tool from XTRK relay.	

STEP	ACTION	VERIFICATION
28	Remove plug of 32A test set from RC jack.	
29	At jack, lamp, and key circuit— Remove 322A plug from M_C_MB jack.	
30	At OTF— Restore all keys and switches.	
I. Reverting Call Feature		
5	Operate OTL, 7D, MCB and GPA or GPB keys as required.	
6	Set A through G DIAL switches to select intraoffice code and originating test line (OTL) number.	
7	Operate MKR_ key for marker under test.	
8b	If some classes of service on reverting calls are routed to reverting call trunks— Set CST, CSU switches to select one of these classes.	
9b	Operate REC key.	
10b	Operate ST key.	At TIC— DR_, RV, FS_, LC_, LV_, TB_, FAK/FBK lamps lighted identifying reverting call trunk.
11b	Restore ST key.	
12b	At TIC— Momentarily operate RLS key.	All lamps extinguished.
13c	If some classes of service on reverting calls are routed to operator special service trunks— Set CST, CSU switches to select one of these classes.	
14c	Operate ST key.	At TIC— DR_, FS_, LC_, LV_, TB_, FAK or FBK lamps lighted identifying operator special service trunk. At OTF— Call completed to operator.
15c	At OTF— Restore ST key.	
16c	At TIC— Momentarily operate RLS key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
17	At OTF— Restore all keys and switches.	

J. False Cross and Ground Test Feature—FCG Relay

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, OGT, MCB, REC keys.	
7	Set CST, CSU switches to select class of service other than PBX.	
8	Set A through G DIAL switches for a noncoin outgoing trunk route and any test line number in called office.	
9	Operate MKR_ key for marker under test.	
10b	If FCG relay is 280AE-type— At marker— Connect 68,000-ohm resistor between 10F, 11F of FAK relay.	
11b	If FCG relay is 316D-type— At marker— Connect 30,000-ohm resistor between 10F, 11F of FAK relay.	
12	At TIC— Momentarily operate RLS key.	All lamps extinguished.
13	At OTF— Operate ST key.	At TIC— DR_, FCG lamps lighted.
14	At OTF— Restore ST key.	
15	At TIC— Momentarily operate RLS key.	All lamps extinguished.
16	At marker— Block operated HTR relay.	
17	At OTF— Operate ST key.	At TIC— No lamps lighted.
18	Restore ST key.	

STEP	ACTION	VERIFICATION
19	At marker— Remove blocking tool from HTR relay.	
20	At OTF— Set CST, CSU switches to select PBX class of service.	
21	Operate ST key.	At TIC— No lamps lighted.
22	Restore ST key.	
23	At marker— Remove resistor from FAK relay.	
24	At jack, lamp, and key circuit— Remove make-busy plug from M_C_MB jack.	
25	At OTF— Restore all keys and switches.	

K. Continuity Test Feature—GT Relay Operate and Release Feature

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 CST, CSU switches for class of service having access to intraoffice route.	
8	Set A through G DIAL switches to select intraoffice code and any test line number which is ring party.	
9	Operate MKR_ key for marker under test.	
10	At marker— Insulate 10M, 11M of FBK relay.	
11	Block nonoperated HTR relay.	
12	At OTF— Block nonoperated TF relay.	
13	At TIC— Momentarily operate RLS key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
14	At OTF— Operate ST key.	At TIC— DR_, HMS1, SL lamps lighted. CON lamp ***not*** lighted.
15	Restore ST key.	
16	At TIC— Momentarily operate RLS key.	All lamps extinguished.
17	At jack, lamp, and key circuit— Operate CCT key.	
18	At OTF— Operate ST key.	At TIC— No display registered.
19	Restore ST key.	
20	At jack, lamp, and key circuit— Restore CCT key.	
21b	If TR2 key 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.	
22b	Block nonoperated XTRK relay.	
23c	If TR2 key provided at OTF— Operate TR2 key.	
24	At TIC— Momentarily operate RLS key.	All lamps extinguished.
25	At OTF— Operate ST key.	At TIC— No display registered.
26	Restore ST key.	
27b	If TR2 key is not provided at OTF— At marker— Remove blocking tool from XTRK relay.	
28b	Remove diode from OR, TR2 relays.	
29	Remove insulator from 10M of FBK relay.	
30c	If TR2 key is provided at OTF— Restore TR2 key.	
31	At OTF— Operate ST key.	At TIC— No display registered.

STEP	ACTION	VERIFICATION
32	Restore ST key.	
33	Set A through G DIAL switches to select intraoffice code and any test line number which is tip party.	
34	Operate ST key.	At TIC— DR_, HMS1, SL lamps lighted. CON lamp ***not*** lighted.
35	Restore ST key.	
	Note: Before proceeding with this test, check that the ringing voltage is between 86 and 87 volts.	
36	At marker— Insulate 10M of FBK relay.	
37	Connect 173,000-ohm resistor between 10M and 11M of FBK relay.	
38	At TIC— Momentarily operate RLS key.	All lamps extinguished.
39	At OTF— Operate ST key.	At TIC— DR_, HMS1, SL lamps lighted. CON lamp ***not*** lighted.
40	Restore ST key.	
41	At TIC— Momentarily operate RLS key.	All lamps extinguished.
42	At marker— Remove resistor from FBK relay.	
43	Connect 130,000-ohm resistor between 10M and 11M of FBK relay.	
44	At OTF— Operate ST key.	At TIC— No display registered.
45	Restore ST key.	
46	At TIC— Momentarily operate RLS key.	All lamps extinguished.
47	At marker— Remove resistor from FBK relay.	
48	Remove insulators from FBK relay.	

STEP	ACTION	VERIFICATION
49	Remove blocking tool from HTR relay.	
50	At jack, lamp, and key circuit— Remove make-busy plug from M_C_MB jack.	
51	At OTF— Remove blocking tool from TF relay.	
52	Restore all keys and switches.	