ORIGINATING MARKER
MISCELLANEOUS TESTS
NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes the method of making miscellaneous tests on markers in No. 1 crossbar offices.

1.02 This section is reissued to revise Test C to provide for markers arranged to operate with dynamic overload control features. This reissue does not affect the Equipment Test List.

1.03 The tests covered are:

1.04 The use of the 32A test set plugged into the F jack on the marker frame will facilitate the silencing of trouble indicator alarms. Momentary operation of the red button, which corresponds to the RL key of the trouble indicator, causes the release of trouble indicator alarms.

1.05 In performing tests covered in this section, the term "connect ground" shall be interpreted as meaning connect solid ground to the designated point by the use of a cord, whereas the term simple "ground" a designated point shall mean that ground may be applied through a test receiver.

1.06 Due to the great number of options available and the wide variation in amounts of equipment installed, no attempt has been made in this section to indicate what equipment may or may not be furnished. The tests have been arranged to progress from right to left and from the top of the frame downward; this will aid in determining equipment not furnished and facilitate the deletion of such parts of tests necessary to simplify subsequent use of the section.

1.07 An assistant will facilitate making Tests B and C.

1.08 Local instructions shall be followed with reference to recording any register operations caused by performing these tests.

2. APPARATUS

2.01 Three 893 cords, 6 feet long, each equipped with two 360A tools (1W13B cord) and one KS-6278 tool and one 419A tool.

2.02 32A test set.

2.03 KS-6320 orange stick.

2.04 Test receiver.

2.05 322A plugs (make-busy) as required.

3. PREPARATION

STEP	ACTION	VERIFICATION
All Tests		
1	Insert make-busy plug into DB jack of marker to be tested.	
2	Insert make-busy plug into TIB jack of marker under test.	
3	Plug 32A test set into F jack at marker frame.	

4. METHOD

STEP	ACTION	VERIFICATION
A. Pattern and Busy Features		
Pattern Check		
4	Block STX relay operated.	
5	Momentarily operate P0 relay.	C relays (L0-L9, R0-R9) operate dependent upon individual pattern.
6	Repeat Step 5 for each P relay (P1-P13) equipped.	
7	Remove block from STX relay.	
Make Channels Busy When Trunks Are in Split Groups		
8	Block STX and SPE relays operated.	
9	Momentarily operate EL relay.	SPR relay operated. All C (R0-R9) relays operated.
10	Using OL relay, repeat Step 9.	
11	Momentarily operate ER relay.	SPL relay operated. All C (L0-L9) relays operated.
12	Using OR relay, repeat Step 11.	
13	Remove block from STX and SPE relays.	
14	Remove all make-busy plugs and 32A test set.	

STEP	ACTION	VERIFICATION
B. Locking Circuit—Circuit Protection Relays		
4	Manually, one at a time, operate all equipped AR2, OF1, all TG's, XBO, XBE, SR, RL, MR, DF0-DF19, P0-P13, TL0-TL14, and JD relays. While each relay is operated— Momentarily operate MRL relay.	MRL relay locks while each relay is operated.
5	Manually, one at a time, operate all equipped ZA1-ZJ1, KP1, OT1, NC1, TC1, OOV1, MICK, ZO, RP1, TP1, and PS1 relays. While each relay is operated— Momentarily operate ST5 relay.	ST5 relay locks while each relay is operated.
6	Block TR relay nonoperated.	
7	Momentarily operate XTC, XZ, XZS, XSM, XX1, XS, XRL, XCH, XK, XS1, and XSL relays.	All relays lock operated.
8	Remove block from TR relay.	TR relay operated. All relays released.
9	Remove all make-busy plugs and 32A test set.	
C. Trouble Cross and Ground Detecting Features		
Detection of False Grounds on Certain Leads When Marker Is Normal		
4	Ground relay contacts as indicated in Table A.	X relays operate as indicated in Table A.
5	▶At dynamic overload route transfer control unit— Momentarily ground equipped punchings as indicated in Table B.	At miscellaneous circuit for originating trouble indicator— X relays operated as indicated in Table B. Lamps corresponding to X relays lighted. Major alarm sounded.
6	At originating trouble indicator— Momentarily operate RT-AR key.	X relays released. X lamps extinguished. Major alarm silenced.◀
Trouble Cross-Detecting Features		
7	Connect together and then ground any two equipped punchings or relay contacts as indicated in Table C.	X relays operated as indicated in Table C.

TABLE A

When "BB" wiring is used, it provides for rerouting calls for special code OFF-9300.

When "N" wiring is used, it provides for second office selections.

When Fig. G is used, the district primary select magnet is energized from the (F) relay in the district junctor.

When Fig. H is used, the district (F) relay closes the ground side of the district primary select magnet, but the battery side is closed by the release of the (CHE2) relay.

LEAD	GROUND	RELAYS OPERATED
SD1	2T of OBP	XT, XT2, XX1
OB2	2T of OB8	XT, XT2, XX1
OB1	2B of OB8	XT, XT2, XX1
SD	2T of OB9	XT, XT2, XX1
OB4	2B of OB9	XT, XT2, XX1
OG5	2T of OGP	XT, XT2, XX1
OG2	2T of OG3	XT, XT2, XX1
OG1	2B of OG3	XT, XT2, XX1
OG4	2T of OG4	XT, XT2, XX1
S0	4T of OG5	XT, XT2, XX1
CR7	2T of SBP	XT, XT2, XX1
SB1	2B of SB8	XT, XT2, XX1
SB2	2T of SB8	XT, XT2, XX1
SBR	2B of SB9	XT, XT2, XX1
CR6	2T of SB9	XT, XT2, XX1
ODN	2B of ODN	XT1, XT2, XX1
TDV	2T of TDV	XTD
SG5 ("BB" Wiring)	2T of SGP	XT, XT2, XX1
SG5 ("N" Wiring)	2T of SGP	XT1, XT2, XX1
SG1	2B of SG3	XT1, XT2, XX1
SG2	2T of SG3	XT1, XT2, XX1
SG4	2T of SG4	XT1, XT2, XX1
SS0	2T of SG5	XT1, XT2, XX1
CR5	2T of CRP	XT1, XT2, XX1
CR2	2T of CR6	XT1, XT2, XX1
CR1	2B of CR8	XT1, XT2, XX1
CR3	2B of CR9	XT1, XT2, XX1
CR4	2T of CR9	XT1, XT2, XX1
TW	4T of TWA when the senders are arranged for first office selections.	XT1, XT2, XX1
	2T of CLP when the senders are not arranged for first office selections.	XT1, XT2, XX1
CL1	2T of CL2	XT1, XT2, XX1
CL2	2T of CL5	XT1, XT2, XX1
	2T of CL7	XT1, XT2, XX1
CL3	2B of CL6	XT1, XT2, XX1
CL4	2T of CL6	XT1, XT2, XX1
	5T of CL7	XT1, XT2, XX1
CL5	2B of CL7	XT1, XT2, XX1

TABLE A (Cont)

LEAD	GROUND	RELAYS OPERATED
SK2	4T of CIH	XT1, XT2, XX1
SK3	6T of CIH	XT1, XT2, XX1
7DG	2T of CIH	XT1, XT2, XX1
ZA-ZJ	5F of ZA1-ZJ1 (all)	XZ, XX2
ZS	2B of ZJ1	XZS, XX2
OT	2T of OT1	XTC, XX2
TC	2T of TC1 when ZO relay is not provided.	XTC, XX2
	2T of ZO when ZO relay is provided.	XTC, XX2
TP	6T of TP1	XTC, XX2
DC	2T of CK6	XDC, XX2
TRL (DLC)	7T of TM9	XRL
TRL (OMC)	7B of TM9	XRL
AID	2B AID1	XT1, XT2, XX1
LC0-9 Even	5T of KE's (all)	XLC, XX2
LC0-9 Odd	5T of KO's (all)	XLC1, XX2
S	7T of any K	XS, XX2
	Block HMT1 operated	
S1	2B of K's (all)	XS1, XX2
S Dist. Link	2T of CH L0-R9 (all)	XCH, XX2
LS Dist. Link	5T of CH L0-R9 (all)	XCH, XX2
LS Off. Link	5B of CH L0-R9 (all)	XCH, XX2
SSA Dist. Link	2T of CHE1	XK, XX2
SSB Dist. Link	4T of CHE1	XK, XX2
SSB Off. Link	2B of CHE1	XK, XX2
SML, SMR	4B of EL, OL, ER and OR (all)	XSM, XX2
NSE, NSO	7T of NSE, NSO	XK, XX2
		XK1, XK, XX2 (Fig. Q)
SPE, SPO	7T of SPE, SPO	XK, XX2
		XK1, XK, XX2 (Fig. Q)
RL	2B of ST5	XRL
SSA Off. Link	2B of CHE2 (Fig. G)	XK, XX2
	6B of CHE2 (Fig. H)	XK, XX2
PSA Off. Link	2T of CHE2 (Fig. G)	XK, XX2
	6T of CHE2 (Fig. H)	XK, XX2
PSB Off. Link	4T of CHE2 (Fig. G)	XK, XX2
	3T of CHE2 (Fig. H)	XK, XX2
MR	4T of AC	MR, XX1
SL	2T of BK	XSL, XX2
BK	9T of BK	XK, XX2
		XK1, XK, XX2 (Fig. Q)
CK	6T of CK	XK, XX2
		XK1, XK, XX2 (Fig. Q)
ST	3T of DF0	XDF1, XX2
TL0-4 Odd	2T of TL0-4 (all)	XTL1, XX2

TABLE A (Cont)

LEAD	GROUND	RELAYS OPERATED
TL0-4 Even	2B of TL0-4 (all)	XTL1, XX2
TL5-9 Odd	2T of TL5-9 (all)	XTL2, XX2
TL5-9 Even	2B of TL5-9 (all)	XTL2, XX2
TL10-14 Odd	2T of TL10-14 (all)	XTL3, XX2
TL10-14 Even	2B of TL10-14 (all)	XTL3, XX2
	CONNECT BATTERY	
SML, SMR	3B of OR	XSS, XX2

TABLE B

TERMINAL STRIP	CROSS CONNECTION PUNCHINGS		RELAYS OPERATED
RT	00 through 19	FIRST MKR	RTX 0
RT		SECOND MKR	RTX 1
RT		THIRD MKR	RTX 2
RT		FOURTH MKR	RTX 3
RT		FIFTH MKR	RTX 4
RT		SIXTH MKR	RTX 5
RT		SEVENTH MKR	RTX 6
RT		EIGHTH MKR	RTX 7
C	00 through 29		RTCX

TABLE C

CROSS CONNECTION PUNCHINGS	RELAYS OPERATED
TL0-TL14	XTL, XX2
CL0-CL7	XCL, XX1
CR0-CR9	XCR, XX1
OB0-OB9	XOB, XX1
OG0-OG5	XOG, XX1
SB0-SB9	XSB, XX1
SG0-SG5	XSG, XX1
GE1-GE39	XGE, XX2
GS0-GS38	XGS, XX2
RELAY CONTACTS	
1T of TC and OT	XC, XX2
1T of ZA to ZJ	XC, XX2
1T of MI1 to MI19	XC, XX2
3B and 6B of F10′	XDF
Relay winding terminal 13T of 00-09 Block 7B and 8B of ST1 closed during this test	XOF, XX2

STEP	ACTION	VERIFICATION

Crosses between Office Link and District Link Secondary Selecting Magnet Leads

8 Insulate and then ground contacts as indicated in Table D. — XK and XX2 relays not operated at any time.

Note: Remove insulator at the completion of test of each lead.

TABLE D

FIG.	LEAD TESTED	INSULATE CONTACTS	GROUND CONTACT
G	PSA	1T-2T of CHE2	2T of CHE2
H	PSA	5T-6T of CHE2	6T of CHE2
G	PSB	3T-4T of CHE2	4T of CHE2
H	PSB	2T-3T of CHE2	3T of CHE2
G	SSA	1B-2B of CHE2	2B of CHE2
H	SSA	5B-6B of CHE2	6B of CHE2
G or H	SSA	1T-2T of CHE1	2T of CHE1

Crosses between S1 Leads

9 Check 1B of all K relays. — All contacts grounded.

10 Momentarily, one at a time, manually operate each K relay. — XS1 and XX2 not operated.

Crosses between Channel Test Leads

11 Connect ground to 1T, 4T, and 4B of CHL0 relay.

12 Momentarily, a pair at a time, close 1T and 2T, 4T and 5T, and 4B and 5B contacts of each CH- relay. — XCH and XX2 relays not operated.

13 Remove grounds from CHL0 relay.

Cross between EA and LA Leads

14 Momentarily, manually operate the EAR and LAR relays at one time. — XX1 relay operated.

15 Remove all make-busy plugs and 32A test set.