COMPLETING MARKER CIRCUITS—PART 34
TESTS USING MASTER TEST FRAME
NO. 5 CROSSBAR OFFICES
ARRANGED WITH CALL DATA TRANSMITTER

1. GENERAL

1.01 This section is Part 34 of a series of sections for testing completing markers. It provides the procedure for verification of the scan leads between the completing marker and the distributor and scanner (DAS) units at the Call Data Transmitter Application Circuit, SD-28130-01, in No. 5 crossbar offices arranged with the Call Data Transmitter (CDT).

1.02 This section affects Equipment Test Lists.

1.03 The tests covered are:

1.04 Verification of the marker scan leads on all tests except DX is by use of designations perforated on the trouble record card taken on a test call. Two trouble records will be taken on some tests, one associated with the marker information and the second from the distribute point operated by the controller.

1.05 The intent of this section is to verify leads between the completing marker and the distribute and scan units and ***not*** between the CDT controller and the trouble recorder. When an error condition is thought to exist between the controller and the trouble recorder, perform the

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trouble recorder distribute lead tests as covered in Section 218-779-305.

1.06 Test DX is performed at the diagnostic test panel (DTP). If additional information on the DTP is required refer to Section 218-779-101 and 218-779-301.

1.07 ***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.

1.08 The manner of selecting some circuits and test conditions at the master test frame (MTF) and its associated circuits varies depending on the apparatus options furnished with these circuits. Therefore, where variable means of selection are provided, precise instructions for the selection of circuits and test conditions are not given. Precise instructions for the use of these variable means are given in Section 218-106-301.

1.09 The location statement, At MTF_, is used to refer to all apparatus located on the four basic bays of the MTF.

2. APPARATUS

Test DR through DW

2.01 Master test control circuit, SD-25800-01.

Test DX

2.02 Diagnostic Test Panel, ED-94984.

2.03 322A (make-busy) plugs as required.

3. METHOD

STEP	ACTION	VERIFICATION
	Note: Refer to paragraphs 1.04 through 1.09.	
DR.	**Originating Test Calls—Scan Lead Verification**	
	Note: A series of test calls must be made to verify all the information leads between the completing markers and their associated distributor and scanner (DAS) assignments. Due to the flexibility of marker cross-connections and the options and features provided, it is not practical to provide a complete test chart for verifying the leads. Instead, the leads and type of information necessary to make the test calls will be provided.	
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select ORIG class of test.	
4	Select originating class of call (OR/FAC) and associated translator indication (LT/LT1/LT2/-LT3/X11) as required for route selected and verification of each lead at least once.	

STEP	ACTION	VERIFICATION
5	Select A_ through K_ digits as required that will check the following leads at least once on a 2/5 basis: A0, 1, 2, 4, 7 B0, 1, 2, 4, 7 C0, 1, 2, 4, 7 D0, 1, 2, 4, 7 E0, 1, 2, 4, 7 F0, 1, 2, 4, 7 G0, 1, 2, 4, 7 H0, 1, 2, 4, 7 J0, 1, 2, 4, 7 K0, 1, 2, 4, 7 L7	
6	Select line locations as required for access to route selected and verification of the following leads at least once: FT 0, 1, 2, 3 (as provided) FU0, 1, 2, 4, 7 (as provided) VG0, 1, 2, 4, 7, 10 (as provided) HG0, 1, 2, 4, 7 VF0, 1, 2, 3, 4	
7	Select class of service as required for access to route selected and verification of the following leads at least once: CT0, 1, 2, 4, 7 (as provided) CU0, 1, 2, 4, 7 CGA (as provided) CGB (as provided)	
8	Select marker under test.	
9	Operate REC, TREC keys.	
10	Operate CDTT key.	
11a	If office is arranged for dual controllers— Operate CDC0/1 key to select controller 0/1.	
12	For at least one test for each controller provided, operate OBS key to verify OBS lead. NOB lead will be verified on all other tests.	
13	For at last one test for each controller provided, operate TP key to verify TP lead. RP lead will be verified on all other tests.	
14	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Two trouble records taken.

STEP	ACTION	VERIFICATION
		Designations perforated on first and second trouble records agree with key/switch setting on MTF. CDC0/1 designation perforated on second trouble record indicating controller used. Check that the following designations are perforated on the second trouble record— A_, B_, C_, CGA/CGB, CKG, CT_, CU_, D_, E_, EVN/ODD, F_, FT_, FU_, G_, H_, HG_, HMS1, J_, K_, L7, LT/LT1/LT2/LT3/X11, MT, MTK, NOB/OBS, RK3, RP/TP, TBK, VF_, VG_.
15	Momentarily operate RL key.	All lamps extinguished.
16a	If office is arranged for dual controllers— Repeat Steps 14 and 15 using other controller.	
17	Repeat Steps 4 through 16a as required to verify all scan leads checked by this test. ***Note:*** Use Table A as checklist.	
18	Repeat Steps 1 through 17 as required until all completing markers have been tested. ***Note:*** If all markers are to be tested successively, it may be desirable to rotate the marker selection on each test call. This will allow comparison of trouble records for the same scan indication.	
19	Restore all keys and switches not required in next test.	

DS. Sampling Test Calls—Scan Lead Verification

Note: A series of test calls must be made to verify all the sampling leads between the markers and their associated distributor and scanner (DAS) assignments. Due to the flexibility of marker cross-connections for traffic sampling and the various options and features provided, it will be simpler to select a route and use a temporary cross-connection to test the sampling scan leads.

1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
3	Select ORIG class of test.	
4	Select A_ through G_ digits as required to select a flat rate outgoing route.	
5	Select OR class of call with translator indication as required for access to route selected.	
6	Select line location as required for access to route selected.	
7	Select class of service as required for access to selected route.	
8	Select marker under test.	
9	Operate TREC key.	
10	Operate CDTT key.	
11a	If office is arranged for dual controllers— Operate CDC0/1 key to select controller 0/1.	
12	Insert make-busy plug into MMB_ jack of marker under test.	
13	At marker frame— Install a temporary cross-connection from CP_ terminal of route selected in Step 4 to SMPA terminal.	
14	At MTF— Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Trouble record taken. CDC0/1, SOG, SMPA designations perforated.
15	Momentarily operate RL key.	All lamps extinguished.
16 a	If office is arranged for dual controllers— Repeat Steps 14 and 15 using other controller.	
17	At marker frame— Move temporary cross-connection placed in Step 13 from SMPA terminal to SMP1 terminal.	
18	At MTF— Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Trouble record taken. CDC0/1, SOG, SPT_, SPU_ designations perforated.
19	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
20	Repeat Steps 17 through 19 until all SMP_ (1-15) scan leads have been tested and verified with each controller provided.	
21	At marker frame— Remove temporary cross-connection.	
22	At MTF Remove make-busy plug from MMB_ jack of marker under test.	
23	Repeat Steps 1 through 22 as required until all completing markers have been tested.	
24	Restore all keys and switches not required in next test.	
DT.	**Route Series Flat Rate Screening—Scan Lead Verification**	
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select ORIG class of test.	
4	Select OR class of call with LT translator indication.	
5	Select A_ through G_ digits as required for a route provided with flat rate screening.	
6	Select line location as required for access to route provided with flat rate screening.	
7	Select class of service as required for access to route selected provided with flat rate screening that will ***not*** be recorded.	
8	Select marker under test.	
9	Operate TREC key.	
10	Operate CDTT key.	
11a	If office is arranged for dual controllers— Operate CDC0/1 key to select controller 0/1.	
12	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Trouble record taken. CDC0/1, RCD0, NRD1 designations perforated.

STEP	ACTION	VERIFICATION
13	Momentarily operate RL key.	All lamps extinguished.
14a	If office is arranged for dual controllers— Repeat Steps 12 and 13 using other controller.	
15	Select class of service as required for access to route selected provided with flat rate screening that will be recorded.	
16	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Trouble record taken. CDC0/1, RCD1, NRD0 designations perforated.
17	Momentarily operate RL key.	All lamps extinguished.
18a	If office is arranged for dual controllers— Repeat Steps 16 and 17 using other controller.	
19	Repeat Steps 1 through 18a as required until all completing markers have been tested. ***Note:*** If all markers are to be tested successively, it may be desirable to rotate the marker selection on each test call. This will allow comparison of trouble records for the same scan indication.	
20	Restore all keys and switches not required in next test.	

DU. Trunk Link Frame—Scan Lead Verification

1	Determine from office records a route which has at least one trunk on each trunk link frame within the switching network. ***Note:*** If the route selected does not have trunks on every trunk link frame, an additional route (or routes) must be selected to provide access to the remaining trunk link frames.	
2	At MTF— Restore all keys and switches.	
3	Momentarily operate RL key.	All lamps extinguished.
4	Select A_ through K_ digits as required to direct call to selected route.	
5	Select ORIG class of test.	

STEP	ACTION	VERIFICATION
6	Select originating class of call (OR/FAC) with translator indication as required for selected route.	
7	Select line location as required for any line having access to selected route.	
8	Select class of service as required for access to selected route.	
9	Select marker under test.	
10	Operate REC, TREC, keys.	
11	Operate CDTT key.	
12	Select trunk link frame 00.	
13a	If office is arranged for dual controllers— Operate CDC0/1 key to select controller 0/1.	
14	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Two trouble records taken. FS00 designation perforated (first trouble record). CDC0/1, TFT0, TFU0 designations perforated (second trouble record).
15	Momentarily operate RL key.	All lamps extinguished.
16a	If office is arranged for dual controllers— Repeat Steps 14 and 15 using other controller.	
17	Repeat Steps 14 and 15 selecting trunk link frame 01, 02 . . . 28, 29 until all trunk link frames provided have been selected and the scan leads verified with each controller provided.	DIS1, LK2, MRL lamps lighted. Two trouble records taken. FS_ designation perforated (first trouble record). CDC0/1, TFT_, TFU_ designations perforated (second trouble record).
18	Repeat Steps 1 through 17 as required until all completing markers have been tested. ***Note:*** If all markers are to be tested successively, it may be desirable to rotate the marker selection on each test call. This will allow comparison of trouble records for the same scan indication.	
19	Restore all keys and switches not required in next test.	

STEP	ACTION	VERIFICATION
DV.	**Intraoffice Call-Free Number—Scan Lead Verification**	
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select ORIG class of test.	
4	Select A_ through G_ digits as required to direct call through intraoffice route to individual or hunting line assigned free number service utilizing the FNA cross-connection in the number group circuit.	
5	Select OR class of call with LT translator indication.	
6	Select line location as required for line identification of any coin or message rate line.	
7	Select class of service as required for access to selected route.	
8	Select marker under test.	
9	Operate TREC key.	
10	Operate CDTT key.	
11a	If office is arranged for dual controllers— Operate CDC0/1 key to select controller 0/1.	
12	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Trouble record taken. CDC0/1, ITR, FN, FNA designations perforated.
13	Momentarily operate RL key.	All lamps extinguished.
14a	If office is arranged for dual controllers— Repeat Steps 12 and 13 using other controller.	
15	Select A_ through G_ digits as required to direct call through intraoffice route to individual or hunting line assigned free number service utilizing the FNB cross-connection in the number group circuit.	

STEP	ACTION	VERIFICATION
16	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Trouble record taken. CDC0/1, ITR, FN, FNB designations perforated.
17	Momentarily operate RL key.	All lamps extinguished.
18a	If office is arranged for dual controllers— Repeat Steps 16 and 17 using other controller.	
19	Repeat Steps 1 through 18a as required until all completing markers have been tested. ***Note:*** If all markers are to be tested successively, it may be desirable to rotate the marker selection on each test call. This will allow comparison of trouble records for the same scan indication.	
20	Restore all keys and switches not required in next test.	

DW. AIOD—Scan Lead Verification

1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select ORIG class of test.	
4	Select A_ through K_ digits as required for access to an AMA outgoing route.	
5	Select OR class of call with translator indication as required for access to route selected.	
6	Select an AIOD line location as required for access to route selected.	
7	Select AIOD class of service and rate treatment as required for access to selected route.	
8	Select marker under test.	
9	Operate REC, TREC keys.	
10	Operate CDTT key.	
11a	If office is arranged for dual controllers— Operate CDC0/1 key to select controller 0/1.	

STEP	ACTION	VERIFICATION
12	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Two trouble records taken. AID designation perforated (first trouble record). CDC0/1, AIOD designations perforated (second trouble record).
13	Momentarily operate RL key.	All lamps extinguished.
14a	If office is arranged for dual controllers—Repeat Steps 12 and 13 using other controller.	
15	Select a ***non*** AIOD line location as required for access to route selected.	
16	Select a ***non*** AIOD class of service as required for access to selected route.	
17	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Two trouble records taken. NID designation perforated (first trouble record). CDC0/1, OC designation perforated (second trouble record).
18	Momentarily operate RL key.	All lamps extinguished.
19a	If office is arranged for dual controllers—Repeat Steps 17 and 18 using other controller.	
20	Repeat Steps 1 through 19a as required until all completing markers have been tested. ***Note:*** If all markers are to be tested successively, it may be desirable to rotate the marker selection on each test call. This will allow comparison of trouble records for the same scan indication.	
21	Restore all keys and switches not required in next test.	

DX. MB, MBK—Scan Lead Verification—Directed Scan/Distribute

Note: Verification of the MB, MBK scan leads will be tested from the Diagnostic Test Panel (DTP). If dual controllers are provided, tests from each controller will be required. MB, MBK scan leads are assigned to different words in the DAS, therefore, it will be necessary to input a different message for each scan

STEP	ACTION	VERIFICATION
	lead per marker. Refer to Table B for MB, MBK DAS lead assignments.	
1	At MTF— Insert make-busy plug into MMB_ jack of marker under test.	
2	At DTP for controller 0/1— Input the following message to read and display the word containing the MB/MBK scan lead for marker under test— E C 8 X D abccd X ***Note:*** Input message description is as follows: E = depress ENABLE key. C = depress COMMAND key. X = depress EXECUTE key. D = depress DATA key. a = CDT bay number DAS appears (0-1). b = DAS unit number on bay (6-8). cc = circuit board number (00-11). d = word on board to be read and displayed (0-3). (See Table B)	***Maintenance Message*** ***MB Scan Lead*** DS = 0000000000100000 Verify operation of MB scan point in bit position 5, word 00. ***MBK Scan Lead*** DS = 0000000000100000 Verify operation of MBK scan point in bit position 5, word 01.
3	Repeat Step 2 until MB and MBK scan leads have been verified for marker under test from controller 0 and controller 1 (if provided).	
4	At MTF— Remove make-busy plug from MMB_ jack of marker under test.	
5	Repeat Step 2.	***Maintenance Message*** ***MB Scan Lead*** DS = 0000000000000000 Verify release of MB scan point in bit position 5, word 00. ***MBK Scan Lead*** DS = 0000000000000000 Verify release of MBK scan point in bit position 5, word 01. ***Note:*** Bit positions 0 through 4 in the above words may be in operated state if marker under test has been seized.

STEP	ACTION	VERIFICATION
6	Repeat Step 5 until MB and MBK scan leads have been verified for marker under test from controller 0 and controller 1 (if provided).	
7	Repeat Steps 1 through 6 until all markers have been tested.	

STEP ACTION VERIFICATION

TABLE A

SCAN LEAD	√	SCAN LEAD	√	SCAN LEAD	√	SCAN LEAD	√	SCAN LEAD	√	SCAN LEAD	√
A0		CU7		FS08		FU2		K4		SMP07	
A1		D0		FS09		FU4		K7		SMP08	
A2		D1		FS10		FU7		L7		SMP09	
A4		D2		FS11		G0		LT		SMP10	
A7		D4		FS12		G1		LT1		SMP11	
AI0D		D7		FS13		G2		LT2		SMP12	
B0		E0		FS14		G4		LT3		SMP13	
B1		E1		FS15		G7		MB		SMP14	
B2		E2		FS16		H0		MBK		SMP15	
B4		E4		FS17		H1		MT		SMPA	
B7		E7		FS18		H2		MTK		SOG	
C0		EVN		FS19		H4		NOB		TBK	
C1		F0		FS20		H7		NRD0		TP	
C2		F1		FS21		HG0		NRD1		VF0	
C4		F2		FS22		HG1		OBS		VF1	
C7		F4		FS23		HG2		OC		VF2	
CGA		F7		FS24		HG4		ODD		VF3	
CGB		FN		FS25		HG7		RCD0		VF4	
CKG		FNA		FS26		HMS1		RCD1		VG0	
CT0		FNB		FS27		ITR		RK3		VG1	
CT1		FS00		FS28		J0		RP		VG2	
CT2		FS01		FS29		J1		SMP01		VG4	
CT4		FS02		FT0		J2		SMP02		VG7	
CT7		FS03		FT1		J4		SMP03		VG10	
CU0		FS04		FT2		J7		SMP04		X11	
CU1		FS05		FT3		K0		SMP05			
CU2		FS06		FU0		K1		SMP06			
CU4		FS07		FU1		K2					

TABLE B

MARKER	SCAN LEAD	CDT BAY NUMBER	DAS UNIT NUMBER	CIRCUIT BOARD NUMBER	WORD
00	MB	0	6	00	0
01	MB	1	6	00	0
02	MB	0	7	00	0
03	MB	0	7	03	0
04	MB	0	7	06	0
05	MB	0	7	09	0
06	MB	0	8	00	0
07	MB	0	8	03	0
08	MB	0	8	06	0
09	MB	0	8	09	0
00	MBK	0	6	01	1
01	MBK	1	6	01	1
02	MBK	0	7	01	1
03	MBK	0	7	04	1
04	MBK	0	7	07	1
05	MBK	0	7	10	1
06	MBK	0	8	01	1
07	MBK	0	8	04	1
08	MBK	0	8	07	1
09	MBK	0	8	10	1