

COMPLETING MARKER TESTS—PART 14
USING OFFICE TEST FRAME TEST CIRCUIT SD-27633-01 (J23260)
NO. 5 CROSSBAR OFFICES
ARRANGED WITH CALL DATA TRANSMITTER

1. GENERAL		PAGE
<p>1.01 This section is Part 14 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).</p> <p>1.02 This issue affects Equipment Test Lists.</p> <p>1.03 The tests covered are:</p>	<p>BI. Trunk Link Frame—Scan Lead Verification: This test will verify the following scan leads between the completing marker and the DAS unit: FS00-29.</p> <p>BJ. Intraoffice Call—Free Number—Scan Lead Verification: This test will verify the following scan leads between the completing marker and the DAS unit: FN, FNA, FNB, ITR.</p> <p>BK. AIOD—Scan Lead Verification: This test will verify the following scan leads between the completing marker and the DAS unit: AIOD, OC.</p> <p>BL. MB, MBK—Scan Lead Verification: This test will verify the following scan leads between the completing marker and the DAS unit: MB, MBK.</p> <p>1.04 Verification of the marker scan leads on all tests except BL is by trouble lamp designations at the trouble indicator and connector (TIC) circuit.</p> <p>1.05 The intent of this section is to verify leads between the completing marker and the distribute and scan units and <i>not</i> between the CDT controller and the TIC. When an error condition is thought to exist between the controller and the TIC, perform the TIC distribute lead tests as covered in Section 218-779-305.</p> <p>1.06 Test BL is performed at the diagnostic test panel (DTP). If additional information on</p>	<p>11</p> <p>12</p> <p>14</p> <p>15</p>
	<p>PAGE</p> <p>3</p> <p>7</p> <p>10</p>	
<p>BF. Originating Test Calls—Scan Lead Verification: This test will verify the following scan leads between the completing marker and the DAS unit: A, B, C, CGA, CGB, CKG, CT, CU, D, E, EVN, F, FU, G, H, HG, HMS1, J, K, L7, LT, LT1, LT2, LT3, MT, MTK, NOB, OBS, ODD, RK3, RP, TBK, TP, VF, VG, X11.</p> <p>BG. Sampling Test Calls—Scan Lead Verification: This test will verify the following scan leads between the completing marker and the DAS unit: SMP, SMPA, SOG.</p> <p>BH. Route Series Flat Rate Screening—Scan Lead Verification: This test will verify the following scan leads between the completing marker and the DAS unit: NRD0, NRD1, RCD0, RCD1.</p>		

NOTICE

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the DTP is required refer to Section 218-779-101 and 218-779-301.

1.07 When lamp display control feature (option YR) is provided at the trouble indicator and connector circuit (TIC), a stored trouble condition is indicated by a lighted red DR lamp. Momentary operation of the LD key will cause the trouble indicating lamps to light. These lamps will be extinguished with the momentary operation of the RLS key. Application of this feature will prevent trouble lamp displays from occurring in unattended offices.

1.08 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 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

Tests BF through BK

2.01 Office test frame (OTF).

2.02 Trouble indicator and connector (TIC) circuit.

Tests BF, BJ, BK

2.03 Patching cord, P3U cord, 7 feet long, equipped with one 310 plug and one 351A plug (3P27B cord).

3. PREPARATION

STEP	ACTION	VERIFICATION
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All Tests Except BL

Note: Refer to paragraphs 1.04 through 1.08.

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|---|---|--|
| 1 | At OTF—
Restore all keys and switches. | |
| 2 | Set L-L switch to 0. | |
| 3 | Set PS switch to 11/56. | |

2.04 Patching cord, P3E cord, 6 feet long, equipped with two 310 plugs (3P7A cord).

Test BF

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

2.06 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord) as required. (Use with tools specified in paragraph 2.07 and 2.08).

2.07 419A (test connector) tools (used for making test connection to contact terminals of relays) as required.

2.08 KS-6278 connecting clips (used for making connection to battery and ground terminals) as required.

2.09 Patching cord, P3BF cord, 7 feet long, equipped with one 351A plug and one 464B-3 plug (3P34A cord) (used for patching from service observing jack to line vertical of regular crossbar switch) or P3BF cord equipped with one 459A plug and one 464B-3 plug (for patching small crossbar switch vertical to service observing jack).

Tests BG, BL

2.10 322A (make-busy) plug.

Test BL

2.11 Diagnostic test panel, ED-94984 (part of CDT controller).

STEP	ACTION	VERIFICATION
4a	If TOUCH-TONE® dialing is desired— Operate TT key.	

4. METHOD

STEP	ACTION	VERIFICATION
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BF. 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 information necessary to make the test calls will be provided.

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|---|---|--|
| 5 | Set A through N DIAL switches as required to select an AMA outgoing route (dual scanned trunk if dual controllers provided) and verification of the following scan leads:
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
LT
LT1
LT2
LT3
X11 | |
| 6 | Determine from office records line locations required for verification of the following scan leads:
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 | At line link frame—
Patch line location selected in Step 6 to SP jack. | |

SECTION 218-423-514

STEP	ACTION	VERIFICATION
8	At OTF— Patch OTL jack to SP jack.	
9	Operate OTLP, _D, OGT, MCB keys.	
10	Operate MKR_ key for marker under test.	
11	Operate TREC, CDTT keys.	
12b	If office is arranged for dual controllers— Operate CDC0/1 key to select controller 0/1.	
13	For at least one test for each controller provided, operate TP key to verify TP scan lead. RP scan lead will be verified on all other tests.	
14	At TIC— Momentarily operate RLS key.	All lamps extinguished.
15	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. Check which of the following lamps are lighted using Table A as checklist— A_ B_ C_ CKG, D_ E_ EVN/ODD, F_ FU_ G_ H_ HG_ HMS1, J_ K_ L7, LT/LT1/LT2/LT3/X11, MT, MTK, NOB, RK3, RP/TP, TBK, VF_ VG_
16	At OTF— Restore ST key.	
17	At TIC— Momentarily operate RLS key.	All lamps extinguished.
18b	If office is arranged for dual controllers— Repeat Steps 15 through 17 using other controller.	
19	Repeat Steps 5 through 18b as required until all scan leads indicated in Step 15 have been verified. Note: Use Table A as checklist.	
20	Repeat Steps 5 through 19 as required for other completing marker. Note: If both markers are to be tested successively it may be desirable to rotate the marker selection on each test call. This will	

STEP	ACTION	VERIFICATION
	allow comparison of trouble lamps for the same scan indication.	
21	At line link frame— Remove patch cord from line location selected in Step 7 to SP jack.	
22	At OTF— Remove patch cord from OTL and SP jacks.	
23	Release OTLP key.	
24	Operate OTL key.	
25	Set A through N DIAL switches as required to select an outgoing route (dual scanned trunk if dual controllers provided).	
26	Set CST, CSU switches for class of service having access to route selected and verification of the following leads: CT0, 1, 2, 4, 7 (as provided) CU0, 1, 2, 4, 7 CGA (as provided) CGB (as provided)	
27	At TIC— Momentarily operate RLS key.	All lamps extinguished.
28	At OTF— Operate ST key.	At TIC CDC0/1 lamp lighted indicating controller used. Check which of the following lamps are lighted using Table A as checklist— CGA, CGB, CT_, CU_.
29	At OTF— Restore ST key.	
30	At TIC— Momentarily operate RLS key.	All lamps extinguished.
31b	If office is arranged for dual controllers— Repeat Steps 27 through 30 using other controller.	
32	Repeat Steps 26 through 31b as required until all class of service scan leads provided, as indicated in Step 28, have been verified.	

SECTION 218-423-514

STEP	ACTION	VERIFICATION
	<i>Note:</i> Use Table A as checklist.	
33	Repeat Steps 26 through 32 as required for other completing marker.	
	<i>Note:</i> If both 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 lamps for the same scan indication.	
34	At line link frame— Patch from SO jack to line link appearance of OTL.	
35	At OTF— Release _D, OGT keys.	
36	Operate 7D, IAO keys.	
37	Set RS1 and/or RS2 switches to select ringing combination.	
38	Set CST, CSU switches for class of service having access to intraoffice route.	
39	Set A through G DIAL switches to select intraoffice code and terminating test line.	
40	At service observing patch bay— Patch from SO jack to observing line circuit to be used in test.	
41	At observing line circuit— Block nonoperated LF relay.	
42	Connect ground to 1T of SL relay.	
43	At TIC— Momentarily operate RLS key.	All lamps extinguished.
44	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. OBS lamp lighted.
45	At OTF— Restore ST key.	
46	At TIC— Momentarily operate RLS key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
47b	If office is arranged for dual controllers— Repeat Steps 44 through 46 using other controller.	
48	At OTF— Operate MKR_ key for other marker.	
49	Repeat Steps 44 through 47b.	
50	At line link frame— Remove patching cord from SO jack and line link appearance of OTL.	
51	At service observing patch bay— Remove patching cord from SO jack.	
52	At observing line circuit— Remove connection from SL relay.	
53	Remove blocking tool from LF relay.	
54	At OTF— Restore all keys and switches.	

BG. 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.

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| 5 | Set A through N DIAL switches as required to select a flat rate outgoing route. | |
| 6 | Set CST, CSU switches for class of service having access to route selected. | |
| 7 | Operate OTL, _D, OGT, MCB keys. | |
| 8 | Operate MKR_ key for marker under test. | |
| 9 | Operate TREC, CDTT keys. | |
| 10b | If office is arranged for dual controllers—
Operate CDC0/1 key to select controller 0/1. | |

STEP ACTION VERIFICATION

TABLE A

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		VF4	
CGB		FN		FS25		HG7		RCDO		VF7	
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					

STEP	ACTION	VERIFICATION
11	At jack, lamp, and key circuit— Insert make-busy plug into M-C-MB_ jack of marker under test.	
12	At marker frame— Install a temporary cross-connection from CP_ terminal of route selected in Step 5 to SMPA terminal.	
13	At TIC— Momentarily operate RLS key.	All lamps extinguished.
14	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. SOG, SMPA lamps lighted.
15	At OTF— Restore ST key.	
16	At TIC— Momentarily operate RLS key.	All lamps extinguished.
17b	If office is arranged for dual controllers— Repeat Steps 13 through 16 using other controller.	
18	At marker frame— Move temporary cross-connection placed in Step 12 from SMPA terminal to SMP1 terminal.	
19	At TIC— Momentarily operate RLS key.	
20	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. SOG, SPT_, SPU_ lamps lighted.
21	At OTF— Restore ST key.	
22	At TIC— Momentarily operate RLS key.	All lamps extinguished.
23	Repeat Steps 18 through 22 until all SMP_ (1-15) scan leads have been tested and verified with each controller provided.	
24	At marker frame— Remove temporary cross-connection.	

SECTION 218-423-514

STEP	ACTION	VERIFICATION
25	At jack, lamp, and key circuit— Remove make-busy plug from M-C-MB_ jack of marker under test.	
26	Repeat Steps 5 through 25 as required for other completing marker.	
27	At OTF— Restore all keys and switches.	
BH. Route Series Flat Rate Screening—Scan Lead Verification		
5	Select A through N DIAL switches as required for a route provided with flat rate screening.	
6	Set CST, CSU switches for class of service having access to route provided with flat rate screening that will <i>not</i> be recorded.	
7	Operate OTL, _D, OGT, MCB keys.	
8	Operate MKR_ key for marker under test.	
9	Operate TREC, CDTT keys.	
10b	If office is arranged with dual controllers— Operate CDC0/1 key to select controller 0/1.	
11	At TIC— Momentarily operate RLS key.	All lamps extinguished.
12	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. RCD0, NRD1 lamps lighted.
13	At OTF— Restore ST key.	
14	At TIC— Momentarily operate RLS key.	All lamps extinguished.
15b	If office is arranged with dual controllers— Repeat Steps 12 through 14 using other controller.	
16	At OTF— Set CST, CSU switches for class of service having access to route provided with flat rate screening that will be recorded.	

STEP	ACTION	VERIFICATION
17	At TIC— Momentarily operate RLS key.	All lamps extinguished.
18	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. RCD1, NRD0 lamps lighted.
19	At OTF— Restore ST key.	
20	At TIC— Momentarily operate RLS key.	All lamps extinguished.
21b	If office is arranged with dual controllers— Repeat Steps 18 through 20 using other controller.	
22	Repeat Steps 5 through 21b as required for other completing marker.	
	<i>Note:</i> If both 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 lamps for the same scan indication.	
23	At OTF— Restore all keys and switches.	

BI. Trunk Link Frame—Scan Lead Verification

- | | | |
|----|---|--|
| 5 | Determine from office records an outgoing route which has at least one trunk on each trunk link frame within the switching network. | |
| | <i>Note:</i> 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. | |
| 6 | Select A through N DIAL switches as required to direct call to selected route. | |
| 7 | Set CST, CSU switches for class of service having access to route selected. | |
| 8 | Operate OTL, _D, OGT, MCB keys. | |
| 9 | Operate MKR_ key for marker under test. | |
| 10 | Operate TREC, CDTT keys. | |

SECTION 218-423-514

STEP	ACTION	VERIFICATION
11b	If office is arranged with dual controllers— Operate CDC0/1 key to select controller 0/1.	
12	Operate FS0 key to select trunk link frame 0.	
13	At TIC— Momentarily operate RLS key.	All lamps extinguished.
14	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. TFU0 lamp lighted.
15	At OTF— Restore ST key.	
16	At TIC— Momentarily operate RLS key.	All lamps extinguished.
17b	If office is arranged with dual controllers— Repeat Steps 13 through 16 using other controller.	
18	Repeat Steps 13 through 17b, selecting trunk link frame 01, 02, 03, 04 until all trunk link frames provided have been selected and the scan leads verified with each controller provided.	At TIC— CDC0/1 lamp lighted indicating controller used. TFU_ lamp lighted indicating trunk link frame seized.
19	Repeat Steps 5 through 18 as required for other completing marker.	
	Note: If both 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 lamps for the same scan indication.	
20	At OTF— Restore all keys and switches.	
BJ. Intraoffice Call—Free Number—Scan Lead Verification		
5	Select A through G DIAL switches 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.	
6	Set CST, CSU switches for message rate class of service.	

STEP	ACTION	VERIFICATION
7	Operate OTL, 7D, IA0, MCB keys.	
8	Operate MKR_ key for marker under test.	
9	Operate TREC, CDTT keys.	
10b	If office is arranged with dual controllers— Operate CDC0/1 key to select controller 0/1.	
11	At TIC— Momentarily operate RLS key.	All lamps extinguished.
12	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. ITR, FN, FNA lamps lighted.
13	At OTF— Restore ST key.	
14	At TIC— Momentarily operate RLS key.	All lamps extinguished.
15b	If office is arranged with dual controllers— Repeat Steps 11 through 14 using other controller.	
16	At OTF— Operate MKR_ key for other marker.	
17	Repeat Steps 11 through 15b.	
18	Select A through G DIAL switches 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.	
19	At TIC— Momentarily operate RLS key.	All lamps extinguished.
20	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. ITR, FN, FNB lamps lighted.
21	At OTF— Restore ST key.	
22	At TIC— Momentarily operate RLS key.	All lamps extinguished.

SECTION 218-423-514

STEP	ACTION	VERIFICATION
23b	If office is arranged with dual controllers— Repeat Steps 19 through 22 using other controller.	
24	At OTF— Operate MKR_ key for other marker.	
25	Repeat Steps 19 through 23b.	
26	At OTF— Restore all keys and switches.	
BK. AIOD-Scan Lead Verification		
5	Set A through N DIAL switches as required for access to an AMA outgoing route.	
6	At line link frame— Patch SP jack to an AIOD line location.	
7	At OTF— Patch OTL jack to SP jack.	
8	Operate OTLP, _D, OGT, MCB keys.	
9	Operate MKR_ key for marker under test.	
10	Operate TREC, CDTT keys.	
11b	If office is arranged with dual controllers— Operate CDC0/1 key to select controller 0/1.	
12	At TIC— Momentarily operate RLS key.	All lamps extinguished.
13	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. AIOD lamp lighted.
14	At OTF— Restore ST key.	
15	At TIC— Momentarily operate RLS key.	All lamps extinguished.
16b	If office is arranged with dual controllers— Repeat Steps 12 through 15 using other controller.	
17	At line link frame— Remove patch cord from AIOD line location	

STEP	ACTION	VERIFICATION
	and SP jack. Patch SP jack to a <i>non</i> AIOD line location.	
18	At TIC— Momentarily operate RLS key.	All lamps extinguished.
19	At OTF— Operate ST key.	At TIC— CDC0/1 lamp lighted indicating controller used. OC lamp lighted.
20	At OTF— Restore ST key.	
21	At TIC— Momentarily operate RLS key.	All lamps extinguished.
22b	If office is arranged with dual controllers— Repeat Steps 18 through 21 using other controller.	
23	Repeat Steps 5 through 22b as required for other completing marker.	
	Note: If both markers are to be tested successively, it may be desirable to rotate marker selection on each test call. This will allow comparison of trouble lamps for the same scan indication.	
24	At line link frame— Remove patch cord from SP jack to line location.	
25	At OTF— Remove patch cord from OTL jack to SP jack.	
26	At OTF— Restore all keys and switches.	

BL. 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 lead per marker. Refer to Table B for MB, MBK, DAS lead assignments.

STEP	ACTION	VERIFICATION
1	At jack, lamp, and key circuit— Insert make-busy plug into M-C-MB_ 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 <i>Note:</i> Input message description: 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)	<p>Maintenance Message</p> <p>MB Scan Lead DS=0000000000100000 Verify operation of MB scan lead in bit position 5, word 0.</p> <p>MBK Scan Lead DS=0000000000100000 Verify operation of MBK scan lead in bit position 5, word 1.</p>
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 jack, lamp, and key circuit— Remove make-busy plug from M-C-MB_ jack of marker under test.	
5	Repeat Step 2.	<p>Maintenance Message</p> <p>MB Scan Lead DS=0000000000000000 Verify release of MB scan lead in bit position 5, word 0.</p> <p>MBK Scan Lead DS=0000000000000000 Verify release of MBK scan lead in bit position 5, word 1.</p> <p><i>Note:</i> Bit positions 0 through 4 in the above words may be in operated state if marker under test has been seized.</p>
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).	

STEP

ACTION

VERIFICATION

- 7 Repeat Steps 1 through 6 as required for other completing marker.

TABLE B

MARKER	SCAN LEAD	CDT BAY NUMBER (a)	DAS UNIT NUMBER (b)	CIRCUIT BOARD NUMBER (cc)	WORD (d)
00	MB	0	6	00	0
01	MB	1	6	00	0
00	MBK	0	6	01	1
01	MBK	1	6	01	1

