

COMBINED AND COMPLETING MARKER CIRCUITS—PART 6
TESTS USING MASTER TEST FRAME
NO. 5 CROSSBAR OFFICES

1. GENERAL		PAGE
1.01	This section is Part 6 in a series of sections for testing combined and completing markers.	test checks the sender selection feature of the marker. 6
1.02	The reasons for reissuing this section are listed below. Revision arrows are used to emphasize the more significant changes. Equipment Test Lists are affected.	
(a)	To revise test procedures to include offices arranged with Electronic Translation System (ETS).	<p>AB. No-Test Feature—Special Markers: This test checks that the marker no-test feature, with or without message register potential detection, functions properly under a called line-busy condition. 9</p>
(b)	To exclude under verification in all tests, reference to “class of test” lamps.	<p>AC. No-Hunt Feature—Special Markers: This test checks that the marker recognizes a no-hunt call and establishes the connection on a no-hunt basis. 12</p>
(c)	To make minor changes as required.	
1.03	The tests covered are:	
	PAGE	
	<p>Z. Number Group Preference Feature—Dual Number Group Operation—ETS Not Provided: This test checks marker features for number group preference on trunk and directory number calls as follows: (1) The marker is connected to a number group associated with even-numbered register connectors when an even-numbered register connector is simulated. (2) The marker is connected to a number group associated with odd-numbered register connectors when an odd-numbered register connector is simulated. (3) The number group preference for even- and odd-numbered register connectors will be reversed on second trial. 2</p>	<p>AD. Special Hunt (Nontest) Feature—Special Markers: This test checks that the marker recognizes a special hunt call and establishes the connection on a special hunt basis. A special hunt call is also known as a regular test call. 12</p>
	<p>AA. Outgoing Sender Preference and Lockout Feature: This</p>	<p>1.04 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.</p>
	<p>1.05 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</p>	

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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.

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

1.07 On issue 76D of SD-25800-01, a group of 18 "class of test" lamps was replaced by a single "start test" lamp designated STT. Since the designation given to the lamp is not specific, the lamp will not be called out in the section, as well as the 18 discontinued lamps, DT, ORIG, ITDO, ITNP, OGT, INC, OR, SDR, IR, MISC, IAO, MLV, LT, IMS, PTT, TVT, ATNT, and IMT.

1.08 When the office is arranged for LAMA-C or ETS, the distributors and scanners associated with the marker and trunk used in the test call must be in service or in a *maintenance-busy* condition—not in an *out-of-service* condition. To change a scanner or distributor from an *out-of-service* to a *maintenance-busy* condition, use the procedure given in the following sections for the office arrangement.

218-798-308—Taking LAMA-C Equipment Out-of-Service

218-799-701—Taking ETS Equipment Out-of-Service.

1.09 Additional test procedures are available for verification of leads between the completing marker and the distributor and scanner (DAS). Refer to Section 218-122-531 for DAS application

3. METHOD

STEP

ACTION

VERIFICATION

Note: Refer to paragraphs 1.05, 1.06, 1.08, 1.09, and 1.10.

Z. Number Group Preference Feature—Dual Number Group Operation—ETS Not Provided

Trunk Numbers

- 1 At MTF—
Restore all keys and switches.

to LAMA-C or Section 218-799-321 for DAS application to ETS.

1.10 When making tests in No. 5 crossbar offices arranged with Electronic Translation System and test verification requires a completing marker trace output (teletype printout) to determine the data used to process a call, operate the TCPO key at the master test frame (MTF). The data or trace output received at the maintenance teletypewriters (TTY) may be in a *raw* form (binary or hexadecimal numbering system), formatted into decimal and written text, or a combination of both. For additional information on trace outputs and formats used, refer to Section 218-799-102.

2. APPARATUS

All Tests

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

Test AA

2.02 322A (make-busy) plugs as required.

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

2.04 32A test set.

2.05 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord) and two 624B (terminal connector) tools (for connecting to terminal strips with wire-wrapped type terminals) or two 419A (test connector) tools (for connecting to terminal strips with solder-type terminals).

STEP	ACTION	VERIFICATION
2	Momentarily operate RL key.	All lamps extinguished.
3	Select INC class of test.	
4	Select any trunk link frame.	
5a	If tandem or intertoll routes are provided— Select A_ through K_ digits as required to direct call to tandem or intertoll outgoing route.	
6a	Select incoming class of call with translator indication as required for completion to selected route.	
7b	If tandem or intertoll routes are not provided and centrex Phase I and II attendant trunks are provided— Operate TRF key.	
8b	Select class of service associated with centrex Phase I and II attendant trunks.	
9b	Select incoming trunk class as required for completion to selected route.	
10	Select trunk number in zero thousands group.	
11c	If 4-wire switching route is selected— Operate 4W key.	
12d	If office is arranged for multilevel preemption— Select CDP, CDA, CD control digits as required for access to selected route.	
13e	If office is arranged for multilevel preemption and call is directed to line with multilevel preemption feature— Operate AD key.	
14f	If office is arranged for multilevel preemption and call is directed to line without multilevel preemption feature— Operate OD key.	
15	Select marker under test.	
16	Operate REC key.	
17	Momentarily operate ST key.	MRL lamp lighted. ♦TNK lamp lighted if equipped.♦ Trouble record taken.

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STEP	ACTION	VERIFICATION
		ECN designation perforated. With trunk numbers assigned to unused hundred series in number groups— OA or OB, NGC_ designations perforated indicating number group used for first trial. With more than 1000 trunk numbers provided— TH_ NGC_ or NGCT_ NGCU_ designations perforated indicating number group used for first trial.
18	Momentarily operate RL key.	All lamps extinguished.
19	Operate TR2 key.	
20	Momentarily operate ST key.	MRL lamp lighted. ◆TNK lamp lighted if equipped.◆ Trouble record taken. ECN designation perforated. Designations perforated indicating number group frame used for second trial.
21	Momentarily operate RL key.	All lamps extinguished.
22	◆Restore TR2 key.◆	
23	Operate OCN key.	
24	Momentarily operate ST key.	MRL lamp lighted. ◆TNK lamp lighted if equipped.◆ Trouble record taken. OCN designation perforated. Designations perforated indicating number group frame used for first trial.
25	Momentarily operate RL key.	All lamps extinguished.
26	◆Operate◆ TR2 key.	
27	Momentarily operate ST key.	MRL lamp lighted. ◆TNK lamp lighted if equipped.◆ Trouble record taken. OCN designation perforated. Designations perforated indicating number group frame used for second trial.
28	Momentarily operate RL key.	All lamps extinguished.
29	◆Restore all keys and switches.◆	
30g	If office is arranged for 2000 trunk numbers and second thousands is to be tested— Operate THT1 key.	

STEP	ACTION	VERIFICATION
31g	Repeat Steps 3 through 29.	
32h	If office is arranged for 3000 trunk numbers and third thousands is to be tested— Operate THT2 key.	
33h	Repeat Steps 3 through 29.	
34i	If office is arranged for 4000 trunk numbers and fourth thousands is to be tested— Operate THT3 key.	
35i	Repeat Steps 3 through 29.	
Directory Numbers		
36	At MTF— Restore all keys and switches.	
37	Momentarily operate RL key.	All lamps extinguished.
38	Select INC class of test.	
39	Select any trunk link frame.	
40	Select A_ through K_ digits as required for directory number connected in two number groups.	
41	Select incoming trunk class as required for completion to called line.	
42	Select incoming class of call as required for completion to called number.	
43	Operate REC key.	
44	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. ECN, NGC_, NGCT_, NGCU_ designations perforated, indicating number group used for first trial.
45	Momentarily operate RL key.	All lamps extinguished.
46	Operate TR2 key.	
47	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. ECN, NGC_ or NGCT_, NGCU_ designations perforated, indicating number group used for second trail.

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STEP	ACTION	VERIFICATION
48	Momentarily operate RL key.	All lamps extinguished.
49	Restore TR2 key.	
50	Operate OCN key.	
51	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. OCN, NGC_ or NGCT_ NGCU_ designations perforated, indicating number group used for first trial.
52	Momentarily operate RL key.	All lamps extinguished.
53	Operate TR2 key.	
54	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. OCN, NGC_ or NGCT_ NGCU_ designations perforated, indicating number group used for second trial.
55	Momentarily operate RL key.	All lamps extinguished.
56	Restore all keys and switches.	
AA. Outgoing Sender Preference and Lockout Feature		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Insert make-busy plug into MMB_ jack of marker under test.	
4	Select A_ through K_ digits as required to direct call to nonallotted outgoing route having maximum number of senders available.	
5a	◆If ETS provided and trunks in route selected are associated with more than one outgoing sender group— Select particular trunk.◆	
6	Select ORIG class of test.	
7	Select OR class of call with translator indication as required for selected route.	
8	Select route advance as required for access to selected route.	

STEP	ACTION	VERIFICATION
9	Select any line location having access to selected route.	
10	Select class of service and rate treatment as required for access to selected route.	
11b	◆If ETS provided— Operate PCS, PTS keys.◆	
12c	If 4-wire switching route is selected— Operate 4W key.	
13d	If office is arranged for multilevel preemption— Select CDP, CD control digits as required for access to selected route.	
14e	If polygrid route is selected— Operate JSQ_ as required for routing control.	
15	Select marker under test.	
16	Operate REC key.	
17f	◆If ETS provided and CM dump is required— Operate TCPO key.	
	<i>Note:</i> See paragraph 1.10.◆	
18	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. SSA designation perforated indicating that sender selected is in subgroup A.
		<i>Note:</i> If SSB designation is perforated, momentarily operate RL key and repeat this step.
19	Momentarily operate RL key.	All lamps extinguished.
20	At marker frame— Block operated SKA relay.	
21	At MTF— Repeat Steps 18 and 19, checking that trouble record indicates that sender selected is in subgroup A (SSA designation perforated).	
22	At marker frame— Remove blocking tool from SKA relay.	
23	Block operated SKB relay.	

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STEP	ACTION	VERIFICATION
24	At MTF— Repeat Steps 18 and 19, checking that trouble record indicates that sender selected is in subgroup B (SSB designation perforated).	
25	Restore REC key.	
26f	◆If ETS provided and CM dump is required— Restore TCPO key.◆	
27	At marker frame— Remove blocking tool from SSB relay.	
28g	If SQ0 or SQ5 (in nonwire-spring-relay type circuit) or JSQ0 relay (in wire-spring-relay type circuit) is not operated— Insert plug of 32A test set into RC jack.	
29g	Momentarily operate white (ST) button.	SQ0, SQ5, or JSQ0 operated.
Note: If this relay is not operated, proceed to Step 30g and repeat Steps 29g, 30g as required until the relay has operated.		
30g	Momentarily operate red (RL) button.	
31	At MTF— Make busy all subgroup A senders associated with route selected by inserting make-busy plugs into associated SMB_ jacks.	
32	Operate REC, OSS, SGA keys.	
33f	◆If ETS provided and CM dump is required— Operate TCPO key.◆	
34h	If OS keys are provided— Operate OS0, OS1 keys.	
35i	If OS switch is provided— Select outgoing sender 0.	
36i	Connect terminals 00, 01 of control bay terminal strip T1.	
37	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. SSA, OS_ designation perforated indicating preferred sender in subgroup A was selected. Refer to Table A for sender preference.
38	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
39h	If OS keys are provided— Repeat Steps 34h, 37, 38, operating OS1, OS2; OS2, OS3; OS3, OS4; OS4, OS0 keys.	
40i	If OS switch is provided— Repeat Steps 35i, 36i, 37, 38, selecting OS1, connect terminals 01, 02; selecting OS2, connect terminals 02, 03; selecting OS3, connect terminals 03, 04; selecting OS4, connect terminals 04, 00.	
41	Remove make-busy plugs from SMB_, MMB_ jacks.	
42	Restore all keys and switches.	
43	At marker frame— Remove plug of 32A test set from RC jack.	

AB. No-Test Feature—Special Markers

Message Register Potential Detection Not Provided

- | | | |
|---|--|-------------------------|
| 1 | At MTF—
Restore all keys and switches. | |
| 2 | Momentarily operate RL key. | All lamps extinguished. |
| 3 | Select INC class of test. | |
| 4 | Select A_ through G_ digits as required to direct call to any individual line. | |

TABLE A

SENDER PREFERENCE

SENDER	RELAY OPERATED				
	SQ0 OR SQ5 JSQ0	SQ1 OR SQ6 JSQ1	SQ2 OR SQ7 JSQ2	SQ3 OR SQ8 JSQ3	SQ4 OR SQ9 JSQ4
OS0	1	4	2	5	3
OS1	3	1	4	2	5
OS2	5	3	1	4	2
OS3	2	5	3	1	4
OS4	4	2	5	3	1

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STEP	ACTION	VERIFICATION
5	Select incoming class of call with translator indication as required for completion to called line.	
6	Select any trunk link frame.	
7	Select incoming trunk class as required for completion to called line.	
8a	If 4-wire switching route is selected— Operate 4W key.	
9b	If office is arranged for multilevel preemption— Select CDP, CDA, CD control digits as required for access to called line.	
10c	If office is arranged for multilevel preemption and call is directed to line with multilevel preemption feature— Operate AD key.	
11d	If office is arranged for multilevel preemption and call is directed to line without multilevel preemption feature— Operate OD key.	
12	Select marker under test.	
13	Operate LB, NT, SPL keys.	
14	Operate REC key.	
15e	◆If ETS provided and CM dump is required— Operate TCPO key.	
	<i>Note:</i> See paragraph 1.10◆	
16	Operate S0 key or set S switch 0 to simulate channel 0.	
17	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Trouble record taken. CH0 designation perforated. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of called line.
18	Momentarily operate RL key.	All lamps extinguished.
19	Repeat Steps 16, 17, 18, selecting S(1-9) in sequence. Check each trouble record to determine that CH_ designation is perforated corresponding to selected S_.	

STEP	ACTION	VERIFICATION
20	Restore all keys and switches.	
Message Register Potential Detection Provided—2-Wire Switching—ETS Not Provided		
21	At MTF— Restore all keys and switches.	
22	Momentarily operate RL key.	All lamps extinguished.
23	Select INC class of test.	
24	Select A_ through G_ digits as required to direct call to any individual line.	
25	Select incoming class of call with translator indication as required for completion to called line.	
26	Select any trunk link frame.	
27	Select incoming trunk class as required for completion to called line.	
28	Select marker under test.	
29	Operate LB, NT, SPL, REC keys.	
30	Operate S0 key or set S switch to 0 to simulate channel 0.	
31	Momentarily operate ST key.	NTT, MPT, M, LF, DIS1, LK2, MRL lamps lighted. Trouble record taken. CH0 designation perforated. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of called line.
32	Momentarily operate RL key.	All lamps extinguished.
33	Repeat Steps 30, 31, 32, selecting S(1-9) in sequence. Check each trouble record to determine that CH_ designation is perforated corresponding to selected S_.	
34	Operate PTL key.	
35	Repeat Steps 30 through 33.	
36	Restore all keys and switches.	

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STEP	ACTION	VERIFICATION
AC. No-Hunt Feature—Special Markers		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select INC class of test.	
4	Select A_ through G_ digits as required to direct call to intermediate line of PBX group.	
5	Select incoming class of call with translator indication as required for completion to called line.	
6	Select any trunk link frame.	
7	Select incoming trunk class as required for completion to called line.	
8	Select marker under test.	
9	Operate NH, SPL, LB keys.	
10	Operate REC key.	
11a	◆If ETS provided and CM dump is required— Operate TCPO key.	
	<i>Note:</i> See paragraph 1.10◆	
12	Momentarily operate ST key.	BY, PBX, MRL lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of called line.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all keys and switches.	
AD. Special Hunt (Nontest) Feature—Special Markers		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select INC class of test.	
4	Select A_ through G_ digits as required to direct call to intermediate line of PBX group.	

STEP	ACTION	VERIFICATION
5	Select incoming class of call with translator indication as required for completion to called line.	
6	Select any trunk link frame.	
7	Select incoming trunk class as required for completion to called line.	
8	Select marker under test.	
9	Operate NN, SPL, LB keys.	
10	Operate REC key.	
11a	♦If ETS provided and CM dump is required— Operate TCPO key.	
	<i>Note:</i> See paragraph 1.10♦	
12	Momentarily operate ST key.	PBX, MRL lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of called line.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all keys and switches.	