COMBINED AND COMPLETING MARKER CIRCUITS—PART 12

TESTS USING MASTER TEST FRAME

NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section is Part 12 in a series of sections for testing combined and completing markers.

1.02 The reasons for reissuing this section are listed below. Revision arrows are used to emphasize the more significant changes. This issue affects Equipment Test Lists.

(a) To revise test procedures to include offices arranged with Electronic Translation System (ETS).

(b) To exclude under verification in all tests, reference to "class of test" lamps.

(c) To make minor changes as required.

1.03 The tests covered are:

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BI. Incoming Call Feature—4-Wire Switching: ▶The following features are checked: (1) Termination of an incoming call from a toll switching or intertoll trunk in offices not arranged for multilevel preemption. (2) Termination of an incoming call using a multilevel route in offices arranged for multilevel preemption. (3) Termination of an incoming call using a nonmultilevel route in offices arranged for multilevel preemption.◀ . 14

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.

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 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 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 or data dump) to determine the data used to process a call, operate the TCPO key at the master test frame (MTF). The data dump 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 data dumps and formats used, refer to Section 218-799-102.◀

2. APPARATUS

All Tests

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

3. METHOD

STEP	ACTION	VERIFICATION
	Note: Refer to paragraphs 1.04 through 1.10.	
BE.	**Code Conversion Feature**	
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 to direct call to outgoing route requiring code conversion.	
5	Select OR class of call with translator indication as required for access to selected route.	
6	Select line location as required for line identification of any line having access to selected route.	
7	Select class of service and rate treatment as required for access to selected route.	
8a	If 4-wire switching route is selected— Operate 4W key.	
9b	If office is arranged for multilevel preemption— Select CDP, CD control digits as required for all routes.	
10c	⧫If ETS provided— Operate PCS key.⧫	
11	Select marker under test.	
12	Operate REC key.	
13d	⧫If ETS provided and CM dump is required— Operate TCPO key. *Note:* Refer to paragraph 1.10.⧫	
14	Momentarily operate ST key.	***Single-Aribitrary-Digit Code Conversion*** ⧫DIS1, LK2, MRL lamps lighted.⧫ Trouble record taken. OSG_, CR_, CP_, DL_, CL_ designations perforated corresponding to route relay for

STEP	ACTION	VERIFICATION
		digit converted as required. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of trunk for outgoing route selected. ▶If ETS provided— CR_, CP_, DL_, TG_ designations not perforated. C'_ designation perforated.◀
		Two-Arbitrary-Digit Code Conversion
		▶DIS1, LK2, MRL lamps lighted.◀ Trouble record taken. OSG_, CR_, BR_, CP_, DL_, CL_ designations perforated corresponding to route relay for digits converted as required. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of trunk for outgoing route selected. ▶If ETS provided— CR_, BR_, CP_, DL_, TG_ designations not perforated. C'_, B'_ designations perforated.◀
		Three-Arbitrary-Digit Code Conversion
		▶DIS1, LK2, MRL lamps lighted.◀ Trouble record taken. OSG_, CR_, BR_, AR_, CP_, DL_, CL_ designations perforated corresponding to route relay for digits converted as required. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of trunk for outgoing route selected. ▶If ETS provided— CR_, BR_, AR_, CP_, DL_, TG_ designations not perforated. C'_, B'_, A'_ designations perforated.◀
15	Momentarily operate RL key.	All lamps extinguished.
16	Restore all keys and switches.	

BF. Customer and Trunk Class Screening Features

Customer Class Screening Feature

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 K_ digits as required to direct call to outgoing route which is accessible by one or more but not all customer classes.	
5	Select line location as required for line identification of line having access to selected route.	
6	Select class of service and rate treatment as required for access to selected route.	
7	Select OR class of call with translator indication as required for access to selected route.	
8a	If 4-wire switching route is selected— Operate 4W key.	
9b	If office is arranged for multilevel preemption— Select CDP, CD control digits as required for access to selected route.	
10c	⧫If ETS provided— Operate PCS key.⧫	
11	Select marker under test.	
12	Operate REC key.	
13d	⧫If ETS provided and CM dump is required— Operate TCPO key. ***Note:*** Refer to paragraph 1.10.⧫	
14	Momentarily operate ST key.	⧫DIS1, LK2, MRL lamps lighted.⧫ Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of outgoing trunk for route selected. ⧫If ETS provided— TG_ designation not perforated.⧫
15	Momentarily operate RL key.	All lamps extinguished.
16	Select class of service and rate treatment as required which are denied access to selected route.	
17	Momentarily operate ST key.	⧫DIS1, LK2, MRL lamps lighted.⧫ Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK

STEP	ACTION	VERIFICATION
		designations perforated indicating location of special service trunk, tone trunk, or announcement trunk. ◗If ETS provided— TG_ designation not perforated.◖
18	Momentarily operate RL key.	All lamps extinguished.
19	Restore all keys and switches.	
Trunk Class Screening Feature		
20	At MTF— Restore all keys and switches.	
21	Momentarily operate RL key.	All lamps extinguished.
22	Select INC class of test.	
23	Select A_ through K_ digits as required for tandem or intertoll outgoing route.	
24	Select any trunk link frame.	
25	Select trunk number as required for incoming trunk having access to selected route.	
26	Select TAN or TOL incoming class of call with translator indication as required for access to selected route.	
27a	If 4-wire switching route is selected— Operate 4W key.	
28b	If office is arranged for multilevel preemption— Select CDP, CDA, CD control digits as required for access to selected route.	
29	Select marker under test.	
30	Operate REC key.	
31c	◗If ETS provided and CM dump is required— Operate TCPO key. ***Note:*** Refer to paragraph 1.10.◖	
32	Momentarily operate ST key.	◗DIS1, LK2, MRL lamps lighted. TNK lamp lighted if equipped.◖ Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of

STEP	ACTION	VERIFICATION
		trunk in selected route. ▶If ETS provided— TG_ designation not perforated.◀
33	Momentarily operate RL key.	All lamps extinguished.
34	Select trunk number as required for trunk not having access to selected route.	
35	Momentarily operate ST key.	***Incoming Trunk Set for Reorder*** ▶DIS1, MRL, OFL lamps lighted. TNK lamp lighted if equipped.◀ Trouble record taken. DR, TER, ROA, OV, OFH, RS0, RS9 designations perforated. ▶If ETS provided— DR designation not perforated.◀ ***Call Routed to Operator, Tone, or Announcement Trunk*** ▶DIS1, LK2, MRL lamps lighted. TNK lamp lighted if equipped.◀ Trouble record taken. DR, OPR designations perforated. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of special service operator, tone, or announcement trunk. ▶If ETS provided— DR, OPR, TG_ designations not perforated.◀
36	Momentarily operate RL key.	All lamps extinguished.
37	Restore all keys and switches.	

BG. Control Digit Screening Feature—Multilevel Preemption Provided—▶ETS Not Provided◀

Originating Route—Routing Permitted—Basic Routing

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 to direct call to outgoing route which is accessible by one or more but not all routing control digits.	

STEP	ACTION	VERIFICATION
5	Select line location as required for line identification of line having access to selected route.	
6	Select class of service and rate treatment as required for access to selected route.	
7	Select CDP16, CD16 control digits for access to selected route.	
8	Select route advance as required for access to selected route.	
9a	If polygrid route is selected— Select JSQ_ as required for routing control.	
10	Select marker under test.	
11	Operate 4W, REC keys.	
12	Momentarily operate ST key.	◗DIS1, LK2, MRL lamps lighted.◖ Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of trunk for outgoing route selected. OSG_, CDP_, CDP'_, CD_, CD'_, CST_, CSU_ designations perforated as required for class of service and control digits selected.
13	Momentarily operate RL key.	All lamps extinguished.
14	Repeat Steps 4 through 13 as required for all classes of service for control digit screening features.	
15	Restore all keys and switches.	
Originating Route—Routing Permitted—Priority Requested—Basic Routing		
16	At MTF— Restore all keys and switches.	
17	Momentarily operate RL key.	All lamps extinguished.
18	Perform Steps 3 through 6.	
19	Select CDP1_, CD16 control digits as required for access to selected route.	
20	Perform Steps 8 through 13.	

STEP	ACTION	VERIFICATION
21	Repeat Steps 18 through 20 as required for all classes of service and priority levels for control digit screening features.	
22	Restore all keys and switches.	
	Originating Route—Routing Permitted—Basic Priority—Routing Requested	
23	At MTF— Restore all keys and switches.	
24	Momentarily operate RL key.	All lamps extinguished.
25	Perform Steps 3 through 6.	
26	Select CDP16, CD1_ control digits as required for access to selected route.	
27	Perform Steps 8 through 13.	
28	Repeat Steps 25 through 27 as required for all classes of service and routing for control digit screening features.	
29	Restore all keys and switches.	
	Originating Route—Routing Permitted—Priority and Routing Requested	
30	At MTF— Restore all keys and switches.	
31	Momentarily operate RL key.	All lamps extinguished.
32	Perform Steps 3 through 6.	
33	Select CDP1_, CD1_ control digits as required for access to selected route.	
34	Perform Steps 8 through 13.	
35	Repeat Steps 32 through 34 as required for all classes of service, priority levels, and routing for control digit screening features.	
36	Restore all keys and switches.	

STEP	ACTION	VERIFICATION
Originating Route—Routing Denied—Basic Priority—Basic Routing		
37	At MTF— Restore all keys and switches.	
38	Momentarily operate RL key.	All lamps extinguished.
39	Select ORIG class of test.	
40	Select A_ through K_ digits as required to direct call to outgoing route which is denied access to one or more but not all control digits from customer class selected for test.	
41	Select line location as required for line identification of line denied access to selected route.	
42	Select class of service and rate treatment as required which are denied access to selected route.	
43	Select CDP16, CD16 control digits to deny access to selected route.	
44	Select route advance as required for access to selected route.	
45a	If polygrid route is selected— Select JSQ_ as required for routing control.	
46	Select marker under test.	
47	Operate 4W, REC keys.	
48	Momentarily operate ST key.	▶DIS1, LK2, MRL lamps lighted.◀ Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of outgoing special service, tone, or announcement trunk.
49	Momentarily operate RL key.	All lamps extinguished.
50	Repeat Steps 40 through 49 as required for all classes of service which are denied access to route.	
51	Restore all keys and switches.	

STEP	ACTION	VERIFICATION
	Originating Route—Routing Denied—Priority Requested—Basic Routing	
52	At MTF— Restore all keys and switches.	
53	Momentarily operate RL key.	All lamps extinguished.
54	Perform Steps 39 through 42.	
55	Select CDP1_, CD16 control digits as required to deny access to selected route.	
56	Perform Steps 44 through 49.	
57	Repeat Steps 54 through 56 as required for all classes of service and priority levels which are denied access to route.	
58	Restore all keys and switches.	
	Originating Route—Routing Denied—Basic Priority—Routing Requested	
59	At MTF— Restore all keys and switches.	
60	Momentarily operate RL key.	All lamps extinguished.
61	Perform Steps 39 through 42.	
62	Select CDP16, CD1_ control digits as required to deny access to selected route.	
63	Perform Steps 44 through 49.	
64	Repeat Steps 61 through 63 as required for all classes of service which are denied access to route.	
65	Restore all keys and switches.	
	Originating Route—Routing Denied—Priority and Routing Requested	
66	At MTF— Restore all keys and switches.	
67	Momentarily operate RL key.	All lamps extinguished.
68	Perform Steps 39 through 42.	

STEP	ACTION	VERIFICATION
69	Select CDP1_, CD1_ control digits as required to deny access to selected route.	
70	Perform Steps 44 through 49.	
71	Repeat Steps 68 through 70 as required for all classes of service and priority levels which are denied access to route.	
72	Restore all keys and switches.	
Tandem Route		
73	At MTF— Restore all keys and switches.	
74	Momentarily operate RL key.	All lamps extinguished.
75	Select INC class of test.	
76	Select A_ through K_ digits as required to direct call to tandem outgoing route which is accessible to one or more but not all control digits.	
77	Select any trunk link frame.	
78	Select trunk number as required for incoming trunk having access to selected route.	
79	Select TOL class of call with TT translator indication.	
80	Select route advance as required for access to selected route.	
81	Select CDP, CDA, CD control digits as required for access to selected route.	
82a	If polygrid route is selected— Select JSQ_ as required for routing control.	
83	Select marker under test.	
84	Operate 4W, REC keys.	
85	Momentarily operate ST key.	◗DIS1, LK2, MRL lamps lighted. TNK lamp lighted if equipped.◖ Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of trunk in tandem outgoing route selected.

STEP	ACTION	VERIFICATION
86	Momentarily operate RL key.	All lamps extinguished.
87	Select CDP, CDA, CD control digits as required to deny access to selected route.	
88	Momentarily operate ST key.	***Call Routed to Trunk*** DIS1, LK2, MRL lamps lighted. TNK lamp lighted if equipped. Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of trunk in outgoing, tone, or announcement route according to marker cross-connections. ***Trunk Set for Reorder*** DIS1, MRL, OFL lamps lighted. TNK lamp lighted if equipped. Trouble record taken. TER, ROA, OV, OFH, RS0, RS9 designations perforated.
89	Momentarily operate RL key.	All lamps extinguished.
90	Restore all keys and switches.	

BH. Incoming Call Features—2-Wire Switching—Noncentrex

Terminating Call

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 K_ digits as required to direct call to local office line.	
5	Select any trunk link frame.	
6	Select incoming class of call with translator indication as required for completion to called line.	
7	Select incoming trunk class as required for completion to called line.	
8	Select marker under test.	
9	Operate REC key.	

STEP	ACTION	VERIFICATION
10a	▶If ETS provided and CM dump is required—Operate TCPO key. ***Note:*** Refer to paragraph 1.10.◀	
11	Momentarily operate ST key.	▶DIS1, LK2, MRL lamps lighted.◀ Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of called line.
12	Momentarily operate RL key.	All lamps extinguished.
13	Repeat Steps 4 through 12 for each different incoming trunk class and translator having access to local office lines.	
14	Restore all keys and switches.	

BI. Incoming Call Feature—4-Wire Switching

Terminating Call—Multilevel Preemption Not Provided

1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL relay.	All lamps extinguished.
3	Select INC class of test.	
4	Select A_ through K_ digits as required to direct call to local office line.	
5	Select any trunk link frame.	
6	Select incoming class of call and translator indication as required for completion to called line.	
7	Select incoming trunk class as required for completion to called line.	
8	Select marker under test.	
9	Operate 4W, REC keys.	
10a	▶If ETS provided and CM dump is required—Operate TCPO key. ***Note:*** Refer to paragraph 1.10.◀	
11	Momentarily operate ST key.	▶DIS1, LK2, MRL lamps lighted.◀ Trouble record taken.

STEP	ACTION	VERIFICATION
		FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of called line.
12	Momentarily operate RL key.	All lamps extinguished.
13	Repeat Steps 4 through 12 for each trunk class and translator having access to local office line.	
14	Restore all keys and switches.	

Terminating Call Through Intertoll Trunk—Multilevel Preemption Provided—Call Terminated to Line Arranged for Multilevel Preemption—◗ETS Not Provided◖

15	At MTF— Restore all keys and switches.	
16	Momentarily operate RL key.	All lamps extinguished.
17	Select INC class of test.	
18	Select A_ through K_ digits as required to direct call to any line arranged for multilevel preemption.	
19	Select TOL incoming class of call with translator indication as required for completion to called line.	
20	Select any trunk link frame.	
21	Select incoming trunk class as required for completion to called line.	
22	Select CDP, CDA, CD control digits as required for completion to called line.	
23	Select marker under test.	
24	Operate 4W, AD, REC keys.	
25	Momentarily operate ST key.	◗DIS1, LK2, MRL lamps lighted.◖ Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of called line.
26	Momentarily operate RL key.	All lamps extinguished.
27	Restore all keys and switches.	

STEP	ACTION	VERIFICATION
	Terminating Call Through Intertoll Trunk—Multilevel Preemption Provided—Call Terminated to Line Not Arranged for Multilevel Preemption—◗ETS Not Provided◖	
28	At MTF— Restore all keys and switches.	
29	Momentarily operate RL key.	All lamps extinguished.
30	Select INC class of test.	
31	Select A_ through K_ digits as required to direct call to any line not arranged for multilevel preemption.	
32	Select TOL incoming class of call with translator indication as required for completion to called line.	
33	Select any trunk link frame.	
34	Select incoming trunk class as required for completion to called line.	
35	Select CDP, CDA, CD control digits as required for completion to called line.	
36	Select marker under test.	
37	Operate 4W, OD, REC keys.	
38	Momentarily operate ST key.	◗DIS1, LK2, MRL lamps lighted.◖ Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of called line.
39	Momentarily operate RL key.	All lamps extinguished.
40	Restore all keys and switches.	