COMBINED AND COMPLETING MARKER CIRCUITS—PART 13
TESTS USING MASTER TEST FRAME
NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section is Part 13 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 does not affect Equipment Test Lists.

(a) To revise Test BK to include offices arranged with Call Data Transmitter (CDT).

(b) To make minor changes as required.

1.03 The tests covered are:

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, ETS, ▶or CDT,◀ 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.

▶218-779-701—Taking CDT 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, Section 218-799-321 for DAS application to ETS, ▶or Section 218-122-534 for DAS application to CDT.◀

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.

1.11 When the trunk under test is arranged for ETS, the first completed test call from the MTF will cause the TST bit to be set in the trunk register associated with the selected trunk, enabling trunk supervisory scanning to be repeated on the FT, CS, and S1 lamps at the MTF trunk test circuit. As long as the TST bit is set in the trunk register, supervision will continue to be repeated on the lamps, even on service calls. The TST bit will remain set in the trunk register until (1) a test call is made from the MTF to another trunk, or (2) the command ***STOP:TRK TST*** is entered at the maintenance TTY.

1.12 ▶When the trunk under test is arranged for CDT, if the CDTT key at the MTF is operated, trunk supervisory scanning will be repeated on the S1 and CS lamps at the MTF trunk test circuit.◀

2. APPARATUS

All Tests

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

Test BK

2.02 Trunk test circuit, SD-25918-01.

Test BM

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

2.04 32A test set.

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

2.06 KS-3008 stopwatch or equivalent.

3. METHOD

STEP	ACTION	VERIFICATION
	Note: Refer to paragraphs 104 through 1.12.	
BJ.	**Station Ringer Test Feature**	
1	At MTF— Restore all keys and switches.	

STEP	ACTION	VERIFICATION
2	Momentarily operate RL key.	All lamps extinguished.
3	Select ORIG class of test.	
4	Select line location as required for line identification of individual line having originating and terminating service or line location associated with direct access to No. 101 ESS.	
5a	If line is ***not*** associated with a direct access to No. 101 ESS— Select A_ through G_ digits as required for ringer test code and numericals of individual line selected in Step 4.	
6b	If line is associated with direct access to No. 101 ESS— Select A_ through G_ digits as required for ringer test code and numericals of the PBX listed directory number.	
7	Select class of service and rate treatment as required for access to selected route.	
8c	If ETS provided— Operate PCS key.	
9	Select OR class of call with translator indication as required for access to selected route.	
10d	If 4-wire switching route is selected— Operate 4W key.	
11e	If office is arranged for multilevel preemption— Select CDP, CD control digits as required for access to selected route.	
12	Select marker under test.	
13a	If line is ***not*** associated with direct access to No. 101 ESS— Operate REC key.	
14b	If line is associated with direct access to No. 101 ESS— Operate TCLA key.	
15	Momentarily operate ST key.	***Line Not Associated With Direct Access to No. 101 ESS*** MRL lamp lighted. Trouble record taken. NSO, RV designations perforated.

STEP	ACTION	VERIFICATION
		FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of station ringer test trunk. If ETS provided— TG_ designation not perforated. ***Line Arranged for Direct Access to No. 101 ESS*** BT-OF, CCSA, or POTS lamps lighted.
16	Momentarily operate RL key.	All lamps extinguished.
17	Restore all keys and switches.	

BK. Intermarker Group Call Feature—Non-CAMA

Subscriber-to-Subscriber

1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3a	If AMA features are ***not*** being tested— Operate KAMA key to cancel AMA record.	
4	Select IAO class of test.	
5	Select A_ through C_ digits as required for office code of called marker group.	
6	Select class of service for flat rate, message register, AMA, or coin operation, as required.	
7b	If ETS provided— Operate PCS key.	
8	Select OR class of call with LT translator indication.	
9	Select marker under test.	
10	Select route advance 0.	
11b	If ETS provided— Operate PTS key.	
12c	If trunk group is allotted— Operate GPA/GPB key as required.	
13	Operate IMG/IMG_ key as required for terminating test line of called marker group.	

STEP	ACTION	VERIFICATION
14	Operate TTL, TLK, REC keys.	
15d	If ETS provided and CM dump is required— Operate TCP0 key. ***Note:*** See paragraph 1.10.	
16e	▶If CDT provided and verification of trunk supervisory leads is desired— Operate CDTT key. ***Note:*** See paragraph 1.12.◀	
	Message Register Operation (ETS, ▶CDT,◀ or LAMA-C not Provided)	
17	Momentarily operate ST key.	AS, TS lamp lighted. Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of intermarker group trunk for route selected.
18	Operate ANS key; ***start timing.***	In 2 to 5 seconds— RP lamp lighted.
19	Restore ANS, TLK keys.	AS, TS lamps extinguished.
20	Momentarily operate RL key.	All lamps extinguished.
	Flat-Rate Operation	
21	Momentarily operate ST key.	AS, TS lamps lighted. If ETS provided— FT, S1 lamps lighted. If LAMA-C provided— S1 lamp lighted. ▶If CDT provided and CDTT key is operated— S1 lamp lighted.◀ Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of intermarker group trunk for route selected. If ETS provided— TG_ designation not perforated.
22	In 6 to 8 seconds— Restore TLK key.	AS, TS lamps extinguished. If ETS provided— FT, S1 lamps extinguished. If LAMA-C provided— S1 lamp extinguished. ▶If CDT provided and CDTT key is operated— S1 lamp extinguished.◀

STEP	ACTION	VERIFICATION
23	Momentarily operate RL key.	All lamps extinguished.
	AMA Operation (ETS, ♦CDT,◄ or LAMA-C not Provided)	
24	Momentarily operate ST key.	AS, TS lamps lighted. If KAMA key not operated— IE, T_, U_, RN_ lamps lighted. Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of intermarker group trunk for route selected. CP_, MB_, RN_, OSG_, AMA designations perforated.
25	In 6 to 8 seconds— Restore TLK key.	AS, TS lamps extinguished.
26	Momentarily operate RL key.	All lamps extinguished.
	Coin Operation	
27	Operate CN key.	
28	Momentarily operate ST key.	AS, TS lamps lighted. If ETS provided— FT, S1 lamps lighted. Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of intermarker group trunk for route selected.
29	In 6 to 8 seconds— Restore TLK key.	CR lamp momentarily lighted. CND lamp lighted AS, TS lamps extinguished. If ETS provided— FT, S1 lamps extinguished.
30	Restore CN key.	CND lamp extinguished.
31	Momentarily operate RL key.	All lamps extinguished.
	Message Register, Flat Rate, AMA, Coin	
32	Restore all keys and switches.	
	Trunk-to-Subscriber	
33	At MTF— Restore all keys and switches.	
34	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
35	Select IAO class of test.	
36	Select A_ through C_ digits for office code of called marker group.	
37	Select TAN incoming class of call with LT translator indication.	TAN lamp lighted.
38	Select marker under test.	
39c	If trunk group is allotted— Operate GPA/GPB key as required.	
40	Operate IMG/IMG_ key as required for terminating test line of called marker group.	
41	Operate TTL, TLK, REC keys.	
42d	If ETS provided and CM dump is required— Operate TCP0 key. ***Note:*** See paragraph 1.10.	
43	Momentarily operate ST key.	AS, TS lamps lighted. If ETS provided— FT lamp lighted. Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of intermarker group trunk for route selected. If ETS provided— TG_ designation not perforated.
44	Restore TLK key.	AS, TS lamps extinguished. If ETS provided— FT lamp extinguished.
45	Momentarily operate RL key.	All lamps extinguished except TAN.
46	Restore all keys and switches.	TAN lamp extinguished.
Subscriber-to-Trunk		
47	At MTF— Restore all keys and switches.	
48	Momentarily operate RL key.	All lamps extinguished.
49	Select OGT class of test.	
50	Select class of service for flat rate, message register, AMA, or coin operation as required.	

STEP	ACTION	VERIFICATION
51b	If ETS provided— Operate PCS key.	
52	Select A_ through C_ digits as required to direct call to a subscriber-to-trunk intermarker group trunk.	
53	Select marker under test.	
54	Select route advance 0.	
55b	If ETS provided— Operate PTS key.	
56c	If trunk group is allotted— Operate GPA/GPB key as required.	
57a	If AMA feature are ***not*** being tested— Operate KAMA key to cancel AMA record.	
58	Operate TLK, TTL, REC keys.	
59d	If ETS provided and CM dump is required— Operate TCP0 key.	
60e	▶If CDT provided and verification of trunk supervisory leads is desired— Operate CDTT key ***Note:*** See paragraph 1.12.◀	
Message Register Operation (ETS, ▶CDT,◀ or LAMA-C not Provided)		
61	Momentarily operate ST key.	AS lamp lighted. Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of intermarker group trunk for route selected.
62	Operate ANS key; ***start timing.***	In 2 to 5 seconds— RP lamp lighted.
63	Restore ANS, TLK keys.	AS lamp extinguished.
64	Momentarily operate RL key.	All lamps extinguished.
Flat Rate Operation		
65	Momentarily operate ST key.	AS lamp lighted. If ETS provided— FT, S1 lamps lighted.

STEP	ACTION	VERIFICATION
		If LAMA-C provided— S1 lamp lighted. ▶If CDT provided and CDTT key is operated— S1 lamp lighted.◀ Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of intermarker group trunk for route selected. If ETS provided— TG_ designation not perforated.
66	In 6 to 8 seconds— Restore TLK key.	AS lamp extinguished. If ETS provided— FT, S1 lamps extinguished. If LAMA-C provided— S1 lamp extinguished. ▶If CDT provided and CDTT key is operated— S1 lamp extinguished.◀
67	Momentarily operate RL key.	All lamps extinguished.
AMA Operation (ETS, ▶CDT,◀ or LAMA-C not Provided)		
68	Momentarily operate ST key.	AS lamp lighted. If KAMA key not operated— IE, T_, U_, RN_ lamps lighted. Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of intermarker group trunk for route selected. CP_, MB_, RN_, OSG_, AMA designations perforated.
69	In 6 to 8 seconds— Restore TLK key.	AS lamp extinguished.
70	Momentarily operate RL key.	All lamps extinguished.
Coin Operation		
71	Operate CN key.	
72	Momentarily operate ST key.	AS lamp lighted. If ETS provided— FT, S1 lamps lighted. Trouble record taken. FS_, TS_, TG_, TB_, LC_, LV_, FAK/FBK designations perforated indicating location of intermarker group trunk for route selected.

STEP	ACTION	VERIFICATION
73	In 6 to 8 seconds— Restore TLK key.	CR lamp momentarily lighted. CND lamp lighted. AS lamp extinguished. If ETS provided— FT, S1 lamps extinguished.
74	Restore CN key.	CND lamp extinguished.
75	Momentarily operate RL key.	All lamps extinguished.
	Message Register, Flat Rate, AMA, Coin	
76	Restore all keys and switches.	

BL. Pulse Conversion Feature

MF-to-RP Conversion 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 D_ digits as required for any line numericals.	
5	Select PCR incoming class of call.	PC lamp lighted.
6	Select 0, 2, 3, or 5 incoming trunk class as required for class of supervision.	
7	Select marker under test.	
8	Operate REC key.	
9a	If ETS provided and CM dump is required— Operate TCP0 key. ***Note:*** See paragraph 1.10.	
10	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. PCR, CR4, CR7, OSG_, RNK designations perforated. C′ through F′_ or D′_ through G′_ designations perforated indicating proper digit shift.
11	Momentarily operate RL key.	All lamps extinguished except PC.
12	Restore A_ through D_ digits.	

STEP	ACTION	VERIFICATION
13	Restore REC key.	
14	Momentarily operate ST key.	OFL, POF, MRL, RA1 lamps lighted. Trouble record taken. No digit designations perforated.
15	Momentarily operate RL key.	All lamps extinguished except PC.
16	Restore all keys and switches.	PC lamp extinguished.
MF-to-DP Conversion Provided		
17	At MTF— Restore all keys and switches.	
18	Momentarily operate RL key.	All lamps extinguished.
19	Select INC class of test.	
20	Select A_ through D_ digits as required for any line numericals.	
21	Select PCD incoming class of call.	PC lamp lighted.
22	Select 0, 2, 3, or 5 incoming trunk class as required for class of supervision.	
23	Select marker under test.	
24	Operate REC key.	
25a	If ETS provided and CM dump is required— Operate TCP0 key.	
26	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. PCD, OSG_, A'_, B'_, C'_, D'_ designations perforated.
27	Momentarily operate RL key.	All lamps extinguished except PC.
28	Restore A_ through D_ digits.	
29	Restore REC key.	
30	Momentarily operate ST key.	OFL, POF, MRL, RA1 lamps lighted. No digit designations perforated.
31	Momentarily operate RL key.	All lamps extinguished except PC.

STEP	ACTION	VERIFICATION
32b	If second PCD outgoing sender group is provided— Repeat Steps 17 through 20.	
33b	Select PCD1 class of call.	
34b	Repeat Steps 22 through 31 noting that PCD1 instead of PCD designation is perforated in Step 26.	
35	Restore all keys and switches.	PC lamp extinguished.

BM. Heavy Traffic Timing Feature

1	At MTF— Insert make-busy plug into MMB_ jack of marker being tested.	
2	Restore all keys and switches.	
3	Momentarily operate RL key.	All lamps extinguished.
4	Select ORIG class of test.	
5	Select A_ through G_ digits as required to direct call through intraoffice route to individual line.	372-9993
6	Select OR class of call with an LT translator indication.	GPA or GPB
7	Select line location as required for line identification of line having originating service.	
8	Select class of service and rate treatment as required for access to selected route.	
9a	If ETS provided— Operate PCS key.	
10b	If 4-wire switching route is selected— Operate 4W key.	
11	Select marker under test.	
12	At marker frame— Insert plug of 32A test set into RC jack.	
13c	If wire-spring-relay type marker is under test and option to guarantee light traffic operation to marker test calls is provided— Insulate 11M of MT18 relay.	

STEP	ACTION	VERIFICATION
14	Momentarily operate white (ST) button.	
15	Momentarily operate red (RL) button.	HTR relay operated for 1.0 to 1.5 seconds.
16	Block operated OAT1 relay.	HTR relay operated. HTT relay not operated within 2 seconds after HTR relay operated.
17	Remove blocking tool from OAT1 relay.	HTT relay operated within 1.0 to 1.5 seconds. HTR relay released.
18c	If wire-spring-relay type marker is under test and option to guarantee light traffic operation on test calls is provided— Remove insulator from MT18 relay.	
19	Remove plug of 32A test set from RC jack.	
20	At MTF— Restore all keys and switches.	
21	Remove make-busy plug from MMB_ jack.	