

COMBINED AND COMPLETING MARKER CIRCUITS—PART 19

TESTS USING MASTER TEST FRAME

NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section is Part 19 in a series of sections for testing combined and completing markers.

◆The tests in this section apply only to completing markers, SD-26002-01.◆

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 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 exclude under verification reference to ringing code lamp 1.
- (d) To make minor changes as required.

1.03 The test covered is:

CB. Phases I and II Centrex Features:

(Also refer to Test CA.) This test checks the following features: (1) Attendant call to station—class-of-service match not required. (2) Attendant call to station—class-of-service match required. (3) Attendant call to station—class-of-service mismatch. (4) Attendant call to listed directory number. (5) Station-to-station call—intercustomer group—class-of-service match not required. (6) Station-to-attendant (dial zero) call. (7) Attendant transfer. (8) Listed directory number call. (9) All attendant trunks busy—listed directory number call. (10) Failure-to-match—transfer call. (11) Dial transfer—station-to-station. (12) Dial transfer to permanent overflow. (13) Dial transfer to

permanent line busy. (14) Dial transfer to listed directory number denied. (15) Dial transfer outside of customer group denied. (16) Dial transfer to attendant. (17) Busy line transfer. (18) Don't answer transfer. (19) Busy line and don't answer transfer. (20) Link release—dial transfer call.

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.

NOTICE

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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
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Note: Refer to paragraphs 1.04 through 1.10.

CB. Phases I and II Centrex Features

Attendant Call to Station—Class-of-Service Match Not Required

- | | | |
|----|--|-------------------------|
| 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 E_ digits as required to select a line with restrictions to complete without a class-of-service match. | |
| 5 | Select class of service as required with restrictions to complete without a class-of-service match. | |
| 6a | ◆If ETS provided—
Operate PCS key.◆ | |
| 7 | Select incoming class of call with X11 or FVD translator indication. | |
| 8 | Select any trunk link frame. | |

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

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

STEP	ACTION	VERIFICATION
9	Select incoming trunk class as required for completion to called line.	
10	Select marker under test.	
11	Operate ATC, REC keys.	ATC lamp lighted.
12b	◆If ETS provided and CM dump is required— Operate TCPO key. <i>Note:</i> See paragraph 1.10.◆	
13	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_, CS 1/0-9, CS 1/10-19, CS 1/20-29 designations perforated indicating location, class of service, and rate treatment of called line. ATT, TBS_ designations perforated. ◆If ETS provided— TBS_ designation not perforated.◆ If multiple class of service is not provided— CTUK designation perforated. If multiple class of service is provided— MRI designation perforated. ◆If ETS provided— MRI designation not perforated.◆
14	Momentarily operate RL key.	All lamps extinguished except ATC.
15	Restore all keys and switches.	ATC lamp extinguished.

**Attendant Call to Station—Class-of-Service Match
Required**

16	Perform Steps 1 through 3.	
17	Select A_ through E_ digits as required to select a line with restrictions to complete with class-of-service match.	
18	Select class of service as required with restrictions to complete with number selected in Step 17.	
19a	◆If ETS provided— Operate PCS key.◆	
20	Perform Steps 7 through 12b.	
21	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken.

STEP	ACTION	VERIFICATION
		FTT_, FUT_, VGT_, HGT_, VFT_, CS 1/0-9, CS 1/10-19, CS 1/20-29 designations perforated indicating line location, class of service, and rate treatment of called line. ATT, TBS_ designations perforated. ♦If ETS provided— TBS_ designation not perforated.♦ If multiple class of service is not provided— CTUK and POTS or MRI designations perforated. If multiple class of service is provided— POTS, MCS, CM designations perforated. ♦If ETS provided— MRI, MCS, CM designations not perforated.♦
22	Momentarily operate RL key.	All lamps extinguished except ATC.
23	Restore all keys and switches.	ATC lamp extinguished.
Attendant Call to Station—Class-of-Service Mismatch		
24	Perform Steps 1 through 3.	
25	Select A_ through E_ digits as required to select a nonrestricted station requiring a match to complete.	
26	Select class of service as required which will not match with number called in Step 25.	
27	Perform Steps 6a through 12b.	
28	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. ATT designation perforated. If multiple class-of-service match is not provided— OFL lamp lighted. Trouble record taken. OV, RS0, RS9 designations perforated. If multiple class-of-service match is provided— Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating line location of announcement or intercept trunk. PUL, BN, RIP, NMR, TBS_ designations perforated. ♦If ETS provided— RIP, NMR, TBS_ designations not perforated.
29	Momentarily operate RL key.	All lamps extinguished except ATC.

STEP	ACTION	VERIFICATION
30	Restore all keys and switches.	ATC lamp extinguished.
Attendant Call to Listed Directory Number		
31	Perform Steps 1 through 3.	
32	Select A_ through E_ digits as required to select listed directory number.	
33	Select class of service associated with listed directory number.	
34	Perform Steps 6a through 12b.	
35	Momentarily operate ST key.	MRL, OFL lamps lighted. Trouble record taken. ATT, LDN, OV, RS0, RS9 designations perforated.
36	Momentarily operate RL key.	All lamps extinguished except ATC.
37	Restore all keys and switches.	ATC lamp extinguished.
Station-to-Station Call—Intercustomer Group—Class-of-Service Match Not Required		
38	At MTF— Restore all keys and switches.	
39	Momentarily operate RL key.	All lamps extinguished.
40	Select ORIG class of test.	
41	Select A_ through E_ digits as required to select a line with restrictions to complete without a class-of-service match.	
42	Select OR class of call with X11 or FVD translator indication.	
43	Select centrex line location.	
44	Select class of service and rate treatment as required in different customer group than line used in Step 41.	
45a	◆If ETS provided— Operate PCS key.◆	
46	Select marker under test.	
47	Operate REC key.	

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STEP	ACTION	VERIFICATION
48b	<p>◆If ETS provided and CM dump is required— Operate TCP0 key.</p> <p><i>Note:</i> See paragraph 1.10.◆</p>	
49	Momentarily operate ST key.	<p>MRL lamp lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of called line.</p>
50	Momentarily operate RL key.	All lamps extinguished.
51	Restore all keys and switches.	
Station-to-Attendant (Dial Zero) Call		
52	<p>At MTF— Restore all keys and switches.</p>	
53	Momentarily operate RL key.	All lamps extinguished.
54	Select ORIG class of test.	
55	Select A0 digit.	
56	Select OR class of call with X11 translator indication.	
57	Select centrex line location as required for access to selected route.	
58	Select class of service and rate treatment as required for access to selected route.	
59a	<p>◆If ETS provided— Operate PCS key.◆</p>	
60	Select marker under test.	
61	Momentarily operate ST key.	<p>MRL lamp lighted. Trouble record taken. If class of service used is associated with a customer group having manual transfer or dial transfer with console— FS_, TS_, TB_, TG_, LC_, LV_, FAK/FBK designations perforated indicating location of attendant trunk associated with class of service of Step 58. ◆If ETS provided— TG_ designation not perforated.◆ If class of service used is associated with customer group having dial transfer without</p>

STEP	ACTION	VERIFICATION
		console— CDN, LDN, TBS_ designations perforated (first trouble card). ◆If ETS provided— TBS_ designation not perforated.◆
62	Momentarily operate RL key.	All lamps extinguished.
63	Restore all keys and switches.	
Attendant Transfer		
64	At MTF— Restore all keys and switches.	
65	Momentarily operate RL key.	All lamps extinguished.
66	Select INC class of test.	
67	Select any trunk link frame.	
68	Select trunk number as required for incoming trunk.	
69	Select class of service as required corresponding to attendant trunk.	
70a	◆If ETS provided— Operate PCS key.◆	
71	Select marker under test.	
72	Operate TRF, REC keys.	TRF lamp lighted.
73b	◆If ETS provided and CM dump is required— Operate TCP0 key.	
	Note: See paragraph 1.10.◆	
74	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken FS_, TS_, TB_, TG_, LC_, LV_, FAK/FBK designations perforated indicating location of an attendant trunk. ◆If ETS provided— TG_ designation not perforated.◆
		Note: Verify from office records that class of service of attendant trunk seized matches with Step 69.
		TRF, TP designations perforated.

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STEP	ACTION	VERIFICATION
75	Momentarily operate RL key.	All lamps extinguished except TRF.
76	Restore all keys and switches.	TRF lamp extinguished.
Listed Directory Number Call		
	<i>Note:</i> For Phases I and II first marker usage for listed directory number call, refer to Section 218-122-518, Test CA.	
77	Perform Steps 64 through 71.	
78	Operate CDN, REC keys.	CDN, TRF lamps lighted.
79b	◆If ETS provided and CM dump is required— Operate TCP0 key.	
	<i>Note:</i> See paragraph 1.10.◆	
80	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. FS_, TS_, TB_, TG_, LC_, LV_, FAK/FBK designations perforated indicating location of an attendant trunk. ◆If ETS provided— TG_ designation not perforated.◆ <i>Note:</i> Determine from office records that class of service of attendant trunk seized matches with Step 69. TRF, CDN, TC designations perforated.
81	Momentarily operate RL key.	All lamps extinguished except CDN, TRF.
82	Restore all keys and switches.	CDN, TRF lamps extinguished.
All Attendant Trunks Busy—Listed Directory Number Call		
83	Perform Steps 64 through 71.	
84	Operate LB, CDN, REC keys.	CND, TRF lamps lighted.
85b	◆If ETS provided and CM dump is required— Operate TCP0 key.	
	<i>Note:</i> See paragraph 1.10.◆	
86	Momentarily operate ST key.	MRL, BY lamps lighted. Trouble record taken.

STEP	ACTION	VERIFICATION
		TRF, CDN, BY, LB, RS1, RS9 designations perforated.
87	Momentarily operate RL key.	All lamps extinguished except TRF, CDN.
88	Restore all keys and switches.	CDN, TRF lamps extinguished.
Failure-to-Match—Transfer Call		
89	Perform Steps 64 through 71.	
90	Operate TRF key.	TRF lamp lighted.
91	Select junctor sequence 0.	
92	Select channel 0.	
93	Determine from office records line link frame location associated with trunk number selected in Step 68.	
94	At line link frame junctor switch— When junctor hold magnet of channel selected and associated select magnets are released— Insert make-busy plug into sleeve grounding jack of junctor hold magnets of junctor switch 0 which have junctors to trunk link frame selected by FG_, FS_, of Step 67.	
	Caution: Before proceeding with next step, check that no crosspoints associated with operated hold magnet are closed.	
95	At MTF— Momentarily operate ST key.	RA1, MRL lamps lighted. Trouble record taken. OV, GS_, FM, OFH, TRF, TER designations perforated. ♦If ETS provided— GS_ designation not perforated.♦
96	Momentarily operate RL key.	All lamps extinguished except TRF.
97	Restore TRF key.	TRF lamp extinguished.
98	Operate CDN key.	CDN, ♦TRF♦ lamps lighted.
99	Momentarily operate ST key.	OFL, MRL lamps lighted. Trouble record taken. FM, RS0, RS9, TRF, CDN, TER designations perforated.

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STEP	ACTION	VERIFICATION
100	Momentarily operate RL key.	All lamps extinguished except CDN, TRF.
101	Restore all keys and switches.	CDN, TRF lamps extinguished.
102	At line link frame junctor switch— Remove make-busy plug from junctor hold magnet.	
Dial Transfer—Station to Station		
103	At MTF— Restore all keys and switches.	
104	Momentarily operate RL key.	All lamps extinguished.
105	Select INC class of test.	
106	Select A_ through E_ digits as required to select station in same customer group.	
107	Select class of service as required for transferring station.	
108a	If ETS provided— Operate PCS key.	
109	Select incoming class of call with X11 or FVD translator indication.	
110	Select any trunk link frame.	
111	Select marker under test.	
112	Operate DTF, REC keys.	
113b	If ETS provided and CM dump is required— Operate TCP0 key.	
	Note: See paragraph 1.10.	
114	Momentarily operate ST key.	FL, DIS1, LK2, MRL lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_, CS 1/0-9, CS 1/10-19, CS 1/20-29, RS6 designations perforated indicating location, class of service, rate treatment (if provided), and ringing code of transferred-to station. CT_, CU_ designations perforated for class of service of transferring station. DTF and X11 or FVD designations perforated.
115	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
116	Restore all keys and switches.	
Dial Transfer to Permanent Overflow		
117	Perform Steps 103 through 105.	
118	Select A_ through E_ digits as required to direct call to permanent overflow number of test customer group.	
119	Perform Steps 107 through 113b.	
120	Momentarily operate ST key.	OFL lamp lighted. Trouble record taken. OV, OFH, DTF designations perforated.
121	Momentarily operate RL key.	All lamps extinguished.
Dial Transfer to Permanent Line Busy		
122	Perform Steps 103 through 105.	
123	Select A_ through E_ digits as required to direct call to permanent line-busy number of test customer group.	
124	Perform Steps 107 through 113b.	
125	Momentarily operate ST key.	BY, MRL lamps lighted. Trouble record taken. DTF, BY designations perforated.
126	Momentarily operate RL key.	All lamps extinguished.
127	Restore all keys and switches.	
Dial Transfer to Listed Directory Number Denied		
128	Perform Steps 103 through 105.	
129	Select A_ through E_ digits as required to direct call to listed directory number of same customer group.	
130	Perform Steps 107 through 113b.	
131	Momentarily operate ST key.	♦MRL♦ lamp lighted. Trouble record taken. OV, DTF designations perforated.
132	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
133	Restore all keys and switches.	
Dial Transfer Outside of Customer Group Denied		
134	Perform Steps 103 through 105.	
135	Select A_ through E_ digits as required to select noncentrex number in same directory number series.	
136	Perform Steps 107 through 113b.	
137	Momentarily operate ST key.	MRL lamp lighted. Two trouble records taken. First trouble record— FT_, FU_, VG_, HG_, VF_ designations perforated indicating location of intercept trunk. BN or RI designation perforated.
138	Momentarily operate RL key.	All lamps extinguished.
139	Restore all keys and switches.	
Dial Transfer to Attendant		
140	Perform Steps 103 through 105.	
141	Select A0 digit.	
142	Perform Steps 107 through 113b.	
143	Momentarily operate ST key.	FL, TP, DIS1, LK2, MRL lamps lighted. Trouble record taken. CT_, CU_ designations perforated indicating class of service of transferring station. DTF and X11 or FVD designations perforated. If class of service used is associated with attendant without console— FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating line location of an attendant. If class of service used is associated with attendant with console— FS_, TS_, TB_, TG_, LC_, LV_, FAK/FBK designations perforated indicating location of attendant trunk. ◆If ETS provided— TG_ designation not perforated.◆
144	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
145	Restore all keys and switches.	
Busy Line Transfer		
146	At MTF— Restore all keys and switches.	
147	Momentarily operate RL key.	All lamps extinguished.
148	Select ORIG class of test.	
149	Select A_ through G_ digits as required to select an intraoffice route and a station in a customer group arranged for busy line transfer terminating treatment.	
150	Select OR class of call with translator indication as required for access to selected route.	
151	Select line location as required to select a noncentrex originating line location.	
152	Select noncentrex class of service and rate treatment as required for access to selected route.	
153a	◆If ETS provided— Operate PCS key.◆	
154	Select marker under test.	
155	Operate REC key.	
156b	◆If ETS provided and CM dump is required— Operate TCP0 key.	
	Note: See paragraph 1.10.◆	
157	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Trouble record taken. FS_ TS_ TB_ TG_ LC_ LV_ FAK/FBK designations perforated indicating location of B appearance of intraoffice trunk (first trouble card), A appearance (second trouble card). BLT, TBS_ designations perforated (first trouble card). ◆If ETS provided— TG_ BLT, TBS_ designations not perforated. FTT_ FUT_ VGT_ HGT_ VFT_ designations perforated indicating line locaton of station

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STEP	ACTION	VERIFICATION
		selected in Step 149 arranged for busy line transfer.♦
158	Momentarily operate RL key.	All lamps extinguished.
159	Operate LBL key.	
160	Momentarily operate ST key.	MRL lamp lighted. Two trouble records taken. First trouble record— BLT, CDN, LDN, TBS_ designations perforated. ♦If ETS provided— BLT, TBS_ designations not perforated.♦
161	Momentarily operate RL key.	All lamps extinguished.
162	Restore all keys and switches.	
163	Select INC class of test.	
164	Select A_ through E_ digits as required to select a centrex station in a customer group arranged for busy line transfer.	
165	Select incoming class of call with X11 or FVD translator indication.	
166	Select incoming trunk class as required for completion to called line.	
167	Select any trunk link frame.	
168	Select marker under test.	
169	Operate REC, LBL keys.	
170b	♦If ETS provided and CM dump is required— Operate TCP0 key.♦	
171	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. BLT, CDN, LDN, TBS_ designations perforated. ♦If ETS provided— BLT, TBS_ designations not perforated.♦
172	Momentarily operate RL key.	All lamps extinguished.
173	Restore all keys and switches.	
Don't Answer Transfer		
174	Perform Steps 146 through 148.	

STEP	ACTION	VERIFICATION
175	Select A_ through G_ digits as required to select an intraoffice route and a station in a customer group arranged for don't answer transfer terminating treatment.	
176	Perform Steps 150 through 156b.	
177	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Trouble record taken. FS_ TS_ TB_ TG_ LC_ LV_ FAK/FBK designations perforated indicating location of B appearance of intraoffice trunk (first trouble card), A appearance (second trouble card). DAT, TBS_ designations perforated (first trouble card). ◆If ETS provided— TG_ TBS_ designations not perforated.◆
178	Momentarily operate RL key.	All lamps extinguished.
179	Restore all keys and switches.	
Busy Line and Don't Answer Transfer		
180	Perform Steps 146 through 148.	
181	Select A_ through G_ digits as required to select an intraoffice route and a station in a customer group arranged for busy line and don't answer transfer terminating treatment.	
182	Perform Steps 150 through 156b.	
183	Momentarily operate ST key.	DIS1, LK2, MRL lamps lighted. Trouble record taken. FS_ TS_ TB_ TG_ LC_ LV_ FAK/FBK designations perforated indicating location of B appearance of intraoffice trunk (first trouble card), A appearance (second trouble card). BLDA designation perforated. ◆If ETS provided— BLDA, TG_ designations not perforated. FTT_ FUT_ VGT_ HGT_ VFT_ designations perforated indicating line location of station selected in Step 181 arranged for busy line and don't answer transfer.◆
184	Momentarily operate RL key.	All lamps extinguished.
185	Restore all keys and switches.	

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STEP	ACTION	VERIFICATION
Link Release—Dial Transfer Call		
186	At MTF— Restore all keys and switches.	
187	Momentarily operate RL key.	All lamps extinguished.
188	Select INC class of test.	
189	Operate DCK, DTF keys.	
190	Select marker under test.	
191	Momentarily operate ST key.	♦TIR♦ lamp lighted. Trouble record taken. DTF, TIR, LRI designations perforated.
192	Momentarily operate RL key.	All lamps extinguished.
193	Restore all keys and switches.	