

COMBINED AND COMPLETING MARKER CIRCUITS—PART 30

TESTS USING MASTER TEST FRAME

NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section is Part 30 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 procedures to include offices arranged with Electronic Translation System (ETS).

(b) To make minor changes as required.

1.03 The tests covered are:

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DA. Automatic Intercept Service Features—A&M Version: This test checks the following features in offices arranged for the A&M version of automatic intercept service (AIS). (1) Blank numbers. (2) Regular intercept. (3) Trouble intercept.

2

DB. Automatic Intercept Service—Sender Selection—A&M Version: This test checks that each dedicated AIS sender is available to the marker.

11

DC. Automatic Intercept Service—Line Circuit Selection—A&M Version: This test checks that each dedicated AIS line circuit is available to the marker.

12

1.04 AIS features apply to 2-wire Bell System network intercepted calls only. Cross-connections are provided for routing trouble intercept and blank number intercept to either the automatic intercept center or to a local switchboard.

1.05 For Test DA, obtain from office records information necessary to fill in the office code transmitted to the automatic intercept center representing the called office code for each incoming class of call and incoming trunk class provided as shown in Tables A and B.

1.06 Refer to Sections 218-156-502 and 218-156-504 for detailed verification of sender reconstruction of office code digits.

1.07 **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, the steps designated by that letter should be omitted.

1.08 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.

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

1.10 ♦When the office is arranged for 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.

NOTICE

Not for use or disclosure outside the Bell System except under written agreement

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To change a scanner or distributor from an *out-of-service* to a *maintenance-busy* condition, use the procedure given in the following section for the office arrangement.

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

1.11 Additional test procedures are available for verification of leads between the completing marker and the distributor and scanner (DAS). Refer to Section 218-799-321 for DAS application to ETS.

1.12 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).

3. METHOD

STEP	ACTION	VERIFICATION
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Note: Refer to paragraphs 1.04 through 1.12.

DA. Automatic Intercept Service Features—A&M Version

Intraoffice Call to Blank Number Intercept

- | | | |
|----|--|-------------------------|
| 1 | At MTF—
Restore all keys and switches. | |
| 2 | Momentarily operate RL key. | All lamps extinguished. |
| 3 | Select completing marker. | |
| 4 | Select ORIG class of test. | |
| 5 | Operate REC key. | |
| 6a | ◆If ETS provided and CM dump is required—
Operate TCPO key. | |

Note: See paragraph 1.12.◆

- | | | |
|---|---|--|
| 7 | Select OR class of call with LT (7-digit), X11 (4-digit), or FVD (5-digit) translator indication as required. | |
| 8 | Select line location having access to selected directory number. | |

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.

Tests DB, DC

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

Test DB

2.03 KS-3008 stopwatch or equivalent.

STEP	ACTION	VERIFICATION
9	Select class of service and rate treatment as required.	
10b	◆If ETS provided— Operate PCS key.◆	
11c	If blank thousand series is provided— Select A_ through G_ digits as required to direct call to blank number intercept for unequipped ◆thousand series.◆	
12c	Momentarily operate ST key.	BN, MRL, DIS1, LK2 lamps lighted. Two trouble records taken. First trouble record— FS_ TS_ TB_ TG_ LC_ FBK designations perforated indicating location of B appearance of IAO trunk. ◆If ETS provided— TG_ designation not perforated.◆ FTT_ FUT_ VGT_ HGT_ VFT_ designations perforated indicating location of line circuit to automatic intercept center. OR, AIS, BN, OS_ LT/X11/FVD designations perforated. Second trouble record— Same as regular IAO call, except AIS, BN, OS_ designations perforated.
13c	Momentarily operate RL key.	All lamps extinguished.
14d	If hundreds block of blank numbers is provided— Select A_ through G_ digits as required to direct call to blank number intercept for blank hundreds block in equipped ◆thousand series.◆	
15d	Perform Step 12c.	
16d	Momentarily operate RL key.	All lamps extinguished.
17	Select A_ through G_ digits as required to direct call to number temporarily ◆assigned◆ for blank number intercept.	
18	Perform Step 12c.	Note: ◆If ETS not provided,◆ PN, TN, EN, or PTN designation may be perforated, depending upon office selected.
19	Momentarily operate RL key.	All lamps extinguished.
20	Restore all keys and switches.	

STEP	ACTION	VERIFICATION
Intraoffice Call to Regular Intercept		
21	Select completing marker.	
22	Select ORIG class of test.	
23	Operate REC key.	
24a	◆If ETS provided and CM dump is required— Operate TCPO key.◆	
25	Select OR class of call with LT (7-digit), X11 (4-digit), or FVD (5-digit) translator indication as required.	
26e	If test call serves 7-digit intraoffice calls— Select A_ through G_ digits to direct call to automatic intercept center for regular intercept treatment in office A (physical).	
27f	If test call serves 4-digit intraoffice calls— Select A_ through D_ digits to direct call to automatic intercept center for regular intercept treatment in office A (physical).	
28g	If test call serves 5-digit intraoffice calls— Select A_ through E_ digits to direct call to automatic intercept center for regular intercept treatment in office A (physical).	
29	Select line location having access to selected directory number.	
30	Select class of service and rate treatment as required.	
31b	◆If ETS provided— Operate PCS key.◆	
32	Momentarily operate ST key.	RI, MRL, DIS1, LK2 lamps lighted. Two trouble records taken. First trouble record— FS_, TS_, TB_, TG_, LC_, LV_, FBK designations perforated indicating location of B appearance of IAO trunk. ◆If ETS provided— TG_ designation not perforated.◆ FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of line circuit to automatic intercept center. OR, AIS, PN, RI, OS_, LT/X11/FVD designations perforated.

STEP	ACTION	VERIFICATION
		<p>◆If ETS provided— PN designation not perforated.◆ Second trouble record— Same as regular IAO call, except AIS, RI, OS_ designations perforated.</p>
33	Momentarily operate RL key.	All lamps extinguished.
34h	<p>If office is arranged for more than one office code— Repeat Steps 25 through 33 for each office designation (office A—theoretical, extra-theoretical, physical-theoretical; office B—physical, theoretical, extra-theoretical, physical-theoretical).</p>	<p>Note: ◆If ETS not provided,◆ PN, TN, EN, or PTN designation may be perforated, depending upon office selected.</p>
35	Restore all keys and switches.	
Intraoffice Call to Trouble Intercept		
	Note: Refer to paragraph 1.04.	
36	Select completing marker.	
37	Select ORIG class of test.	
38	Operate REC key.	
39a	<p>◆If ETS provided and CM dump is required— Operate TCPO key.◆</p>	
40	<p>Select OR class of test with LT (7-digit), X11 (4-digit), or FVD (5-digit) translator indication as required.</p>	
41	<p>Select A_ through G_ digits as required to direct call to number temporarily ◆assigned◆ for trouble intercept.</p>	
42	<p>Select line location having access to selected directory number.</p>	
43	<p>Select class of service and rate treatment as required.</p>	
44b	<p>◆If ETS provided— Operate PCS key.◆</p>	
45	Momentarily operate ST key.	<p>TBI, MRL, DIS1, LK2 lamps lighted. Two trouble records taken. First trouble record— FS_, TS_, TB_, TG_, LC_, LV_, FBK designations perforated indicating location of</p>

STEP	ACTION	VERIFICATION
		B appearance of IAO trunk. ♦If ETS provided— TG_ designation not perforated.♦ FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of line circuit to automatic intercept center. OR, AIS, TBI, OS_, LT/X11/FVD designations perforated. Second trouble record— Same as regular IAO call, except AIS, TBI, OS_ designations perforated.
46	Momentarily operate RL key.	All lamps extinguished.
47	Operate PU key.	
48	Select A_ through G_ digits as required to direct call to any directory number.	
49	Repeat Step 45.	Note: PUL designation also perforated.
50	Momentarily operate RL key.	All lamps extinguished.
51	Restore all keys and switches.	

Terminating Call to Blank Number Intercept

Note: Refer to paragraph 1.04.

52	Select completing marker.	
53	Select INC class of test.	
54	Operate REC key.	
55a	♦If ETS provided and CM dump is required— Operate TCPO key.♦	
56	Select trunk link frame.	
57	Operate FS key.	
58	Select INC class of call and translator indication as determined in Table A.	
59	Select incoming trunk class as determined in Table A.	
60c	If blank thousand series is provided— Select A_ through D_ digits to direct call to blank number intercept for unequipped ♦thousand series.♦	

STEP

ACTION

VERIFICATION

TABLE A

TRUNK GROUP	ITC-RN KEY OR SWITCH PROVIDED		IC KEY OR SWITCH PROVIDED		ICL SWITCH PROVIDED			SENDER OFC RELAY OPERATED	OFFICE CODE TRANSMITTED TO AIS CENTER		
	INCOMING TRUNK CLASS		INCOMING CLASS						A	B	C
	ITC-RN KEY	ITC-RN SWITCH	IC KEY OR SWITCH	MISC	ICL SWITCH	TRNB SWITCH	CL SWITCH				
More than one office code per trunk group — blank thousands or hundreds	2SA	2	OA		INC	OA	TCA	0, 2, or 4			
	2SA	2	OB		INC	OB	TCA	1, 3, or 5			
	3NA	3	OA		INC	OA	TCA	0, 2, or 4			
	3NA	3	OB		INC	OB	TCA	1, 3, or 5			

Note: Refer to 1.05 for instructions for filling in table.

- 61c Momentarily operate ST key. BN, MRL, DIS1 lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of line circuit to automatic intercept center. INC, AIS, OA/OB, BN, OS_, ITC_ designations perforated.
- 62c Momentarily operate RL key. All lamps extinguished.
- 63d If hundreds block of blank numbers is provided— Select A_ through D_ digits to direct call to blank number intercept for blank hundreds block in equipped thousand series.
- 64d Perform Step 61c.
- 65d Momentarily operate RL key. All lamps extinguished.
- 66 Select A_ through D_ digits to direct call to number temporarily assigned for blank number intercept.
- 67 Perform Step 61c. **Note:** If ETS not provided, PN, TN, EN, or PTN designation may be perforated, depending upon office selected.
- 68 Momentarily operate RL key. All lamps extinguished.
- 69i If office is arranged for more than one office code and incoming trunk class—

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STEP	ACTION	VERIFICATION
	Repeat Steps 58 through 68 for each code and incoming trunk class as determined in Table A.	
70	Restore all keys and switches.	
Terminating Call to Regular Intercept		
71	Select completing marker.	
72	Select INC class of test.	
73	Operate REC key.	
74a	◆If ETS provided and CM dump is required— Operate TCPO key.◆	
75	Select trunk link frame.	
76	Operate FS key.	
77	Select INC class of call and translator indication as determined in Table B.	
78	Select incoming trunk class as determined in Table B.	
79	Select A_ through D_ digits to direct call to automatic intercept center for regular intercept treatment in office A (physical).	
80	Momentarily operate ST key.	RI, MRL, DIS1, LK2 lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of line circuit to automatic intercept center. INC, AIS, OA, PN, RI, OS_, ITC_ designations perforated. ◆If ETS provided— PN designation not perforated.◆
81	Momentarily operate RL key.	All lamps extinguished.
82i	If office is arranged for more than one office code and incoming trunk class— Repeat Steps 77 through 81 for each office code and incoming trunk class as determined in Table B.	Note: OA, OB designations may be perforated, depending upon office selected. ◆If ETS not provided, PN, TN, EN, PTN designations may be perforated depending upon office selected.◆
83	Restore all keys and switches not required in next test.	

STEP

ACTION

VERIFICATION

TABLE B

TRUNK GROUP	ITC-RN KEY OR SWITCH PROVIDED		IC KEY OR SWITCH PROVIDED	ICL SWITCH PROVIDED				SENDER OFC RELAY OPERATED	OFFICE CODE TRANSMITTED TO AIS CENTER		
	INCOMING TRUNK CLASS		INCOMING CLASS						A	B	C
	ITC-RN KEY	ITC-RN SWITCH	IC KEY OR SWITCH	MISC	ICL SWITCH	TRNB SWITCH	CL SWITCH				
Trunk group requires revertive pulse — incoming register			AB	PHC	INC	PHC	TCA	0			
			AB	THC	INC	THC	TCA	1			
More than one office code per trunk group — physical number	2SA	2	OA		INC	OA	TCA	0			
	2SA	2	OB		INC	OB	TCA	3			
	3NA	3	OA		INC	OA	TCA	0			
	3NA	3	OB		INC	OB	TCA	3			
Trunk group terminates to physical number only	8SP	8	OA		INC	OA	TCA	0			
	8SP	8	OB		INC	OB	TCA	3			
	9NP	9	OA		INC	OA	TCA	0			
	9NP	9	OB		INC	OB	TCA	3			
More than one office code per trunk group — theoretical number	2SA	2	OA		INC	OA	TCA	1			
	2SA	2	OB		INC	OB	TCA	4			
	3NA	3	OA		INC	OA	TCA	1			
	3NA	3	OB		INC	OB	TCA	4			
Trunk group terminates to theoretical numbers only	5ST	5	OA		INC	OA	TCA	1			
	5ST	5	OB		INC	OB	TCA	4			
	6NT	6	OA		INC	OA	TCA	1			
	6NT	6	OB		INC	OB	TCA	4			
More than one office code per trunk group — extra-theoretical number	2SA	2	OA		INC	OA	TCA	2			
	2SA	2	OB		INC	OB	TCA	5			
	3NA	3	OA		INC	OA	TCA	2			
	3NA	3	OB		INC	OB	TCA	5			
Trunk group terminates to extra-theoretical numbers only	1SE	1	OA		INC	OA	TCA	2			
	1SE	1	OB		INC	OB	TCA	5			
	4NE	4	OA		INC	OA	TCA	2			
	4NE	4	OB		INC	OB	TCA	5			
More than one office code per trunk group — physical-theoretical number	2SA	2	OA		INC	OA	TCA	0, 2, or 4			
	2SA	2	OB		INC	OB	TCA	1, 3, or 5			
	3NA	3	OA		INC	OA	TCA	0, 2, or 4			
	3NA	3	OB		INC	OB	TCA	1, 3, or 5			

Note: Refer to 1.05 for instructions for filling in table.

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STEP	ACTION	VERIFICATION
Terminating Call to Trouble Intercept		
	<i>Note:</i> Refer to paragraph 1.04.	
84	Select completing marker.	
85	Select INC class of test.	
86	Operate REC key.	
87a	◆If ETS provided and CM dump is required— Operate TCPO key.◆	
88	Select trunk link frame.	
89	Operate FS key.	
90	Select INC class of call and translator indication as determined in Table B.	
91	Select incoming trunk class as determined in Table B.	
92	Select A_ through D_ digits to direct call to number temporarily ◆assigned◆ for trouble intercept.	
93	Momentarily operate ST key.	TBI, MRL, DIS1, LK2 lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of line circuit to automatic intercept center. INC, AIS, OA/OB, PN, TBI, OS_, ITC_ designations perforated. ◆If ETS provided— PN designation not perforated.◆
94	Momentarily operate RL key.	All lamps extinguished.
95	Operate PU key.	
96	Select A_ through D_ digits as required to direct call to any directory number.	
97	Repeat Step 93.	<i>Note:</i> PUL designation also perforated.
98	Momentarily operate RL key.	All lamps extinguished.
99	Restore all keys and switches.	

STEP	ACTION	VERIFICATION
DB. Automatic Intercept Service—Sender Selection—A&M Version		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select completing marker.	
4	Select INC class of test.	
5	Operate AIS, AIRI, REC keys.	
6a	◆If ETS provided and CM dump is required— Operate TCPO key.	
	<i>Note:</i> See paragraph 1.12.◆	
7	Set AIS switch to 0.	
8	Select INC class of call and translator indication as required.	
9	Select incoming trunk class having access to called directory number.	
10	Select A_ through D_ digits to direct call to any directory number in selected office.	
11	Select trunk link frame.	
12	Operate FS key.	
13	Momentarily operate ST key.	MRL, DIS1 lamps lighted. Trouble record taken. INC, AIS, OA/OB, PN, RI, ITC_ designations perforated. ◆If ETS provided— PN designation not perforated.◆ If selected sender is not service-busy— LK2 lamp lighted. OS_ designation perforated. If selected sender is service-busy— OFL lamp lighted. OV designation perforated.
14	Momentarily operate RL key.	All lamps extinguished.
15	Change setting of AIS switch to 1 and repeat Steps 13 and 14.	

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STEP	ACTION	VERIFICATION
16b	If three senders are provided— Change setting of AIS switch to 2 and repeat Steps 13 and 14.	
17	Set AIS switch to OFF.	
18	Make busy all AIS senders.	
19	Momentarily operate ST key.	In 1.5 seconds— MRL, DIS1, OFL lamps lighted. Trouble record taken. INC, AIS, OA/OB, PN, RI, ITC_, OV designations perforated. ◆If ETS provided— PN designation not perforated.◆
20	Momentarily operate RL key.	All lamps extinguished.
21	Remove make-busy plugs from all AIS senders made busy in Step 18.	
22	Restore all keys and switches.	
DC. Automatic Intercept Service—Line Circuit Selection—A&M Version		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select completing marker.	
4	Select INC class of test.	
5	Operate AIS, AIRI, SIL, REC keys.	
6a	◆If ETS provided and CM dump is required— Operate TCPO key.	
	Note: See paragraph 1.12.◆	
7	Set AIL switch to 0.	
8	Select INC class of call and translator indication as required.	
9	Select incoming trunk class having access to called directory number.	
10	Select A_ through D_ digits to direct call to any directory number in selected office.	

STEP	ACTION	VERIFICATION
11	Select trunk link frame.	
12	Operate FS key.	
13	Momentarily operate ST key.	<p>MRL, DIS1 lamps lighted. Trouble record taken. INC, AIS, OA/OB, PN, RI, ITC_ designations perforated. ♦If ETS provided— PN designation not perforated.♦ If selected line circuit is not service- or maintenance-busy— LK2 lamp lighted. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of selected line circuit. If selected line circuit is service- or maintenance-busy— OFL lamp lighted. OV designation perforated.</p>
14	Momentarily operate RL key.	All lamps extinguished.
15	Change setting of AIL switch and repeat Steps 13 and 14 for each additional line circuit.	
16	Insert make-busy plug into MB jack associated with last line circuit tested in Step 15.	
17	Momentarily operate ST key.	<p>MRL, DIS1, OFL lamps lighted. Trouble record taken. INC, AIS, OV designations perforated.</p>
18	Momentarily operate RL key.	All lamps extinguished.
19	Remove make-busy plug from line circuit.	
20	Restore all keys and switches.	