

COMBINED AND COMPLETING MARKER CIRCUITS—PART 2
TESTS USING MASTER TEST FRAME
NO. 5 CROSSBAR OFFICES

1. GENERAL

PAGE

1.01 This section is Part 2 of a series of sections for testing combined and completing markers. The tests in this section do not apply in No. 5 crossbar offices equipped with Electronic Translation System (ETS).

selection of allotted trunk groups on successive calls. It also checks that, if all the trunks of one group are busy, the marker will select a trunk in the other group regardless of the setting of the 2-step allotter.

5

1.02 This section is reissued for the following reasons:

- (a) To indicate that tests in this section do not apply in offices equipped with ETS.
- (b) To exclude under test verification, reference to "class of test" lamps.
- (c) To make minor changes as required.

H. Two-Step Allotter Feature—Two Sender Groups of a Type Available to Trunks of a Particular Route - ETS Not Provided. This test checks that, if all senders of a sender group (which is available to an allotted group of trunks) are busy, the marker will select a trunk in the other group associated with the other sender group regardless of the setting of the 2-step allotter.

7

This issue does not affect Equipment Test Lists.

1.03 The tests covered are:

PAGE

E. Trunk Link Frame Preference and Lockout Feature - ETS Not Provided. This test checks the trunk selecting feature of the marker.

2

F. Trunk Link Frame Cross-Detection Feature - ETS Not Provided. This test checks that the marker will recognize a falsely grounded FTC_lead from a trunk link frame having no trunks for the desired route.

4

G. Two-Step Allotter Feature—More Than 20 Trunks on a Trunk Link Frame for a Particular Route - ETS Not Provided. This test checks that the marker alternates

I. Failure-to-Match Feature Using Allotted Intraoffice Trunks - ETS Not Provided. This test checks that the marker recycles after a failure to match on calls using allotted intraoffice trunks.

9

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

NOTICE

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

SECTION 218-122-502

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, such as DT, ORIG, ITDO, ITNP, OGT, INC, OR, SDR, IR, MISC, IAO, MLV, LT, IMS, PTT, TVT, ATNT, and IMT.⚡

3. METHOD

STEP	ACTION	VERIFICATION
-------------	---------------	---------------------

Note: Refer to 1.05 and 1.06.

E. Trunk Link Frame Preference and Lockout Feature
- ⚡ETS Not Provided⚡

1 Determine from office records a route which has at least one trunk on each trunk link frame within a switching network.

Note: This will usually be an intraoffice route. If the intraoffice route does not have trunks on every trunk link frame, an additional route (or routes) must be selected to provide access to the remaining trunk link frames. If 2-wire and 4-wire networks are served, suitable routes must be selected in both networks.

2 At MTF—
Restore all keys and switches.

3 Momentarily operate RL key. All lamps extinguished.

4 Insert make-busy plug into MMB_ jack of marker under test.

5 Select A_ through K_ digits as required to direct call to selected route.

2. APPARATUS

All Tests

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

Tests E, G, H

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

Test E

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

2.04 32A test set.

Test I

2.05 351C (make-busy) plugs as required.

STEP	ACTION	VERIFICATION
6	Select ORIG class of test.	
7	Select OR class of call with translator indication as required for 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 polygrid route is selected— Select JSQ_ as required for routing control.	
11	Select line location as required for any line having access to selected route.	
12	Select class of service and rate treatment as required for access to selected route.	
13	Select route advance as required for access to selected route.	
14	Select marker under test.	
15	At marker frame— Insert plug of 32A test set into RC jack.	
16d	If operated FMG_, FM_ (wire-spring or nonwire-spring relay type) relays do not correspond to trunk link frame having trunk of selected route— Momentarily operate white (ST) button.	Appropriate FMG_ or FM_ relays operated.
17d	Momentarily operate red (RL) button.	
18	Block operated all FB_ relays for trunk link frames having trunks of selected route, except FB_ relay corresponding to operated FMG_ or FM_ relays.	
19	Momentarily operate white (ST) button.	FS_, FB_ relays momentarily operated for trunk link frame determined in Step 16d.
20	Momentarily operate red (RL) key.	
21	Remove blocking tools from FB_ relays.	
22	Momentarily operate white (ST) button.	FS_, FB_ relays momentarily operated for next trunk link frame in sequence.

STEP	ACTION	VERIFICATION
	Note: If more than one route is necessary as determined in Step 1, Steps 5 through 13 must be repeated when route required for selection of next trunk link frame is different from the one previously tested.	Note: For wire-spring-relay type circuits, trunk link frame sequence is successively even- or odd-numbered trunk link frames (e.g., 0, 2, 4-26, 28, 1, 3, 5-27, 29, 0) and for nonwire-spring-relay type circuits, consecutively numbered trunk link frames (e.g., 0, 1, 2, 3-27, 28, 29, 0).
23	Momentarily operate red (RL) button.	
24	Repeat Steps 22, 23, until all FS_, FB_ relays for existing trunk link frames have operated in proper sequence.	
25	Remove plug of 32A test set from RC jack.	
26	At MTF— Restore all keys and switches.	
27	Remove make-busy plug from MMB_ jack.	
F. Trunk Link Frame Cross-Detection Feature - ETS Not Provided		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select A_ through K_ digits as required to direct call to route not having trunks on all trunk link frames.	
4	Select ORIG class of test.	
5	Select OR class of call with translator indication as required for selected route.	
6a	If 4-wire switching route is selected— Operate 4W key.	
7b	If office is arranged for multilevel preemption— Select CDP, CD control digits as required for access to selected route.	
8c	If polygrid route is selected— Select JSQ_ as required for routing control.	
9	Select line location as required for any line having access to selected route.	

STEP	ACTION	VERIFICATION
10	Select class of service and rate treatment as required for access to selected route.	
11	Select route advance as required for access to selected route.	
12	Operate GPA/GPB key as required for selected group when trunk is in an allotted subgroup.	
13	Select marker under test.	
14	Select a trunk which has the same TB, TG cross-connections as the selected route, but on a trunk link frame which has no trunks associated with route selected in Step 3.	
15	Momentarily operate ST key.	BT-OF lamp lighted. Trouble record taken. XFT designation perforated.
16	Momentarily operate RL key.	All lamps extinguished.
17	Restore all keys and switches.	
G. Two-Step Allotter Feature—More Than 20 Trunks on a Trunk Link Frame for a Particular Route - ETS Not Provided		
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 route having allotted groups of intraoffice, outgoing, or intertoll trunks.	
5	Select ORIG class of test.	
6	Select OR class of call with translator indication as required for selected route.	
7a	If 4-wire switching route is selected— Operate 4W key.	
8b	If office is arranged for multilevel preemption— Select CDP, CD control digits as required for access to selected route.	

SECTION 218-122-502

STEP	ACTION	VERIFICATION
9c	If polygrid route is selected— Select JSQ_ as required for routing control.	
10	Select line location as required for line identification of any line having access to selected route.	
11	Select class of service and rate treatment as required for access to selected route.	
12	Select route advance as required for access to selected route.	
13	Select marker under test.	
14	Operate REC key.	
15	Momentarily operate ST key.	MRL lamp lighted. Depending on route used, one or two trouble records taken. First trouble record— AL, GPA, or GPB designations perforated indicating trunk is in trunk group A or B.
		Note: GPA and GPB designations should appear alternately on marker usage for trunks in allotted groups.
16	Momentarily operate RL key.	All lamps extinguished.
17	Repeat Steps 15, 16 for alternate designation.	
18	Select trunk link frame having trunks in groups A and B for selected route.	
19	Make busy all group A trunks appearing on selected trunk link frame.	
20	Momentarily operate ST key.	MRL lamp lighted. Depending on route used, one or two trouble records taken. First trouble record— AL, GPB, FS_ designations perforated indicating trunk in trunk group B selected.
21	Momentarily operate RL key.	All lamps extinguished.
22	Repeat Steps 20, 21.	
23	Restore trunks in group A to service.	

STEP	ACTION	VERIFICATION
24	Make busy all group B trunks appearing on selected trunk link frame.	
25	Momentarily operate ST key.	MRL lamp lighted. Depending on route used, one or two trouble records taken. First trouble record— AL, GPA, FS_ designations perforated indicating trunk in trunk group A selected.
26	Momentarily operate RL key.	All lamps extinguished.
27	Repeat Steps 25, 26.	
28	Restore trunks in group B to service.	
29	Restore all keys and switches.	
30	Remove make-busy plug from MMB_ jack.	

H. Two-Step Allotter Feature—Two Sender Groups of a Type Available to Trunks of a Particular Route - ♦ETS Not Provided♦

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 allotted outgoing route having access to two sender groups.	
5	Select ORIG class of test.	
6	Select OR class of call with a translator indication as required for selected route.	
7a	If 4-wire switching route is selected— Operate 4W key.	
8b	If office is arranged for multilevel preemption— Select CDP, CD control digits as required for access to selected route.	
9c	If polygrid route is selected— Select JSQ_ as required for routing control.	

SECTION 218-122-502

STEP	ACTION	VERIFICATION
10	Select line location as required for line identification of any line having access to selected route.	
11	Select class of service and rate treatment as required for access to selected route.	
12	Select route advance as required for access to selected route.	
13	Select marker under test.	
14	Operate REC key.	
15	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. AL, GPA, or GPB designations perforated indicating sender serving trunk group A or B. <i>Note:</i> GPA and GPB designations should appear alternately on marker usage for senders in allotted groups.
16	Momentarily operate RL key.	All lamps extinguished.
17	Repeat Steps 15, 16 for alternate designation.	
18	Insert make-busy plugs into SCMB_ jacks associated with marker under test for sender subgroups A and B of sender group available to trunk group A.	
19	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. AL, GPB designations perforated.
20	Momentarily operate RL key.	All lamps extinguished.
21	Repeat Steps 19, 20.	
22	Restore senders serving trunk group A.	
23	Insert make-busy plugs into SCMB_ jacks associated with marker under test for sender subgroups A and B of sender group available to trunk group B.	
24	Momentarily operate ST key.	MRL lamp lighted. Trouble record taken. AL, GPA designations perforated.

STEP	ACTION	VERIFICATION
25	Momentarily operate RL key.	All lamps extinguished.
26	Repeat Steps 24, 25.	
27	Restore senders serving trunk group B.	
28	Restore all keys and switches.	
29	Remove make-busy plug from MMB_ jack.	
I. Failure-to-Match Feature Using Allotted Intraoffice Trunks - ETS Not Provided		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select trunk link frame having at least one idle allotted intraoffice trunk in each group and at least one idle tone trunk.	
4	Select line location as required for line identification of line having access to intraoffice route.	
5	Select class of service and rate treatment as required for access to selected route.	
6	Select A_ through K_ digits as required for intraoffice code and numerals of called individual line whose line link frame appearance is on same line link frame and horizontal group as originating line selected in Step 4.	
7a	If 4-wire switching route is selected— Operate 4W key.	
8b	If office is arranged for multilevel preemption— Select CDP, CD control digits as required for access to selected route.	
9	Select ORIG class of test.	
10	Select OR class of call with an LT translator indication.	
11	Select marker under test.	
12	Select CH0.	
13	Select JSQ0.	

STEP	ACTION	VERIFICATION
14	Select STP1.	
15	Operate REC key.	
16	Momentarily operate ST key.	<p>MRL, RA1 lamps lighted. Three trouble records taken. First and second trouble records— AL, FLG, CH0 designations perforated. TG_, TB_, FS_, TS_, LC_, LV_, FBK designations perforated indicating location of called end of allotted intraoffice trunks in subgroups indicated by perforated GPA and GPB designations. Third trouble record— GS_ designation perforated. TG_, TB_, FS_, TS_, LC_, LV_, FAK/FBK designations perforated indicating location of tone trunk.</p>
17	Momentarily operate RL key.	All lamps extinguished.
18	<p>At line and junctor switch bay of line link frame determined in Step 4— When junctor hold magnets of channel selected are released— Insert make-busy plugs into sleeve grounding jacks of hold magnets of junctor switch 0 which have junctors to trunk link frame determined in Step 3. (Refer to Table A.)</p>	<p>Junctor hold magnets operated. Caution: Before proceeding with this test, check that no crosspoints associated with operated hold magnets are closed.</p>
19	<p>At MTF— Momentarily operate ST key.</p>	<p>RBT1, BT-OF, RA1 lamps lighted. Trouble record taken. FM, GS_ designations perforated. TG_, TB_, FS_, TS_, LC_, LV_, FAK/FBK designations perforated indicating location of tone trunk. Note: These lamps and perforations indicate that first, second, and third failure-to-match functions were successful.</p>
20	Momentarily operate RL key.	All lamps extinguished.
21	<p>At line and junctor switch bay— Remove make-busy plugs.</p>	
22c	<p>If office is arranged for PBX recycle on a failure to match— Select A_ through K_ digits as required for intraoffice code and numerals of called PBX line whose line link frame appearance is on</p>	

STEP	ACTION	VERIFICATION
	<i>same</i> line link frame and horizontal group as originating line selected in Step 4.	
23c	At line and junctor switch bay of line link frame determined in Step 4— When junctor hold magnets of channel selected are released— Insert make-busy plugs into sleeve grounding jacks of hold magnets of junctor switch 0 which have junctors to trunk link frame determined in Step 3. (Refer to Table A.)	Junctor hold magnets operated. Caution: Before proceeding with this test, check that no crosspoints associated with operated hold magnets are closed.
24c	At MTF— Momentarily operate ST key.	RBT1, BT-OF, RA1 lamps lighted. Two trouble records taken. First trouble record— PRCY, FLG designations perforated. TG_, TB_, FS_, TS_, LC_, LV_, FBK designations perforated indicating location of called end of allotted intraoffice trunks in subgroups indicated by perforated GPA and GPB designations. Second trouble record— FM, GS_ designations perforated. TG_, TB_, FS_, TS_, LC_, LV_, FAK/FBK designations perforated indicating location of tone trunk.
25c	Momentarily operate RL key.	All lamps extinguished.
26c	At line and junctor switch bay— Remove make-busy plugs.	
27c	At MTF— Restore all keys and switches.	

TABLE A

JUNCTOR GROUPING PATTERN WHEN JSQ0 SELECTED

NUMBER OF TRUNK LINK FRAMES*			LINE LINK VERTICAL									
SIN- GLE	PAIRED	TRIPLED	0	1	2	3	4	5	6	7	8	9
2	4		JG0	JG0								
		6	JG0	JG0								
2-3	4-6		JG0	JG0	JG0							
		6-9	JG0	JG0	JG0							
3	6		JG0	JG0	JG0							
		9	JG0	JG0	JG0							
4	8	12	JG0	JG0	JG0	JG0						
5	10	15	JG0	JG0	JG0	JG0	JG0					
6			JG0	JG0	JG0	JG0	JG0	JG0				
	12		JG0	JG0	JG0	JG0	JG0	JG0	JG0			
		18	JG0	JG0	JG0	JG0	JG0	JG0	JG0			
7			JG0	JG0	JG0	JG0	JG0	JG0	JG0	JG0		
	14	21	JG0	JG0	JG0	JG0	JG0	JG0	JG0	JG0		
8	16	24	JG0	JG0	JG0	JG0	JG0	JG0	JG0	JG0	JG0	
9	18	27	JG0	JG0	JG0	JG0	JG0	JG0	JG0	JG0	JG0	JG0
10	20	30	JG0	JG0	JG0	JG0	JG0	JG0	JG0	JG0	JG0	JG0

* Two- or 4-wire frames.