

**TERMINATING MARKER AND TERMINATING MARKER APPLIQUE
TESTS USING TERMINATING TROUBLE INDICATOR SD-25284-01
NO. 1 CROSSBAR OFFICES**

1. GENERAL

PAGE

1.01 This section describes the method of testing terminating marker and terminating marker applique circuits in No. 1 crossbar offices using the terminating trouble indicator SD-25284-01.

1.02 This section is reissued to add information to Part 3, PREPARATION and add a step to all tests for offices equipped with automatic trouble analysis.

This reissue does not affect the Equipment Test List.

1.03 The tests covered are:

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A. Individual Lines and Tip and Ring Parties of 2-Party Lines (Including Tests for Discrimination Between Physical and Theoretical Numbers and Also Between Office A and Office B): This test checks the ability of the marker to complete a call to a desired terminal, to select the proper office where more than one central office is served by the same terminating marker group, and to distinguish between physical and theoretical numbers in a 10,000 number series which is divided into two central offices, one a physical and the other a theoretical office.

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B. PBX Having All Its Lines Within One Twenty Block: This test checks the ability of the marker to terminate to the first idle terminal of a PBX group in which all terminals appear in a single twenty block.

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C. End-of-Block Hunt: This test checks the ability of the marker to hunt past the busy terminals of one twenty block and terminate to the first idle terminal of the succeeding twenty block when testing a PBX group in which terminals appear in two or more consecutive twenty blocks.

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D. Jump Hunt: This test checks the ability of the marker to hunt past a jump hunt terminal and terminate to a nonconsecutive idle terminal.

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E. Jump Hunt After End-of-Block Hunt: This test checks the ability of the marker to hunt past a jump hunt terminal and terminate to an idle terminal in an extra number twenty block when testing a PBX group in which terminals appear in three or more twenty blocks, the first two being regular number twenty blocks.

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F. Jump Hunt Before End-of-Block Hunt: This test checks the ability of the marker to hunt past a jump hunt terminal and terminate to an idle terminal in an extra number twenty block when testing a PBX group in which terminals appear in three or more twenty blocks, two of which are extra number twenty blocks.

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G. Split Hundreds: This test checks the ability of the marker to hunt past the busy terminals of one twenty block and terminate to an idle terminal of a nonconsecutive twenty block.

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NOTICE

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H. PBX Allotter: This test checks the allotter feature of the marker where the alternate number group or PBX block allotter arrangements are used.	11	P. Number Check (Special Markers Only): This test checks the operation of the local and toll number check features of the marker.	19
I. Free Lines: This test checks that the marker recognizes a free line call.	13	Q. No Test (Special Markers Only): This test checks that the marker can terminate to a busy individual line.	21
J. PBX Retest: This test checks that the marker will attempt to complete a call to a line in a terminal hunting group, other than the line originally selected, if no channel is available to the first selected line or if a GT relay failure is encountered on the first attempt.	14	R. No Hunt (Special Markers Only): This test checks that the marker will select only the number set up on the numerical keys and will not hunt for an idle terminal in a PBX group.	22
K. Reorder: This test checks that a grounded OF lead to the marker will cause an overflow routing.	15	S. Regular (Special Markers Only): This test checks that the marker can terminate to ring and tip party lines and PBX lines arranged for outward service only and indicate the proper ringing field connections.	22
L. Intercept (AIS Not Provided): This test checks that the marker will route to the proper group of intercept trunks when a nonworking line is called.	16	T. Extra Numbers: This test checks that the marker can terminate to extra number terminals.	23
M. Trouble Intercept (AIS Not Provided): This test checks that the marker will route to the proper group of trouble intercept trunks when a plugged-up line condition is recognized.	17	U. CON Relay Test: This test makes a nonoperate and an operate test of the marker CON relay.	24
N. Busy Lines: This test checks that the marker will cause a busyback signal to be returned on calls to busy individual lines. On calls to coin lines with the receiver off the hook, a check is made that a busyback or overflow signal is returned or that a ground test failure is indicated, depending on local conditions.	17	V. GT Relay Test: This test makes an operate test of the marker GT relay.	24
O. Overflow Test: This test checks that an overflow routing is given on calls to numbers assigned for testing the incoming overflow signal.	18	W. FCG Relay Test: This test makes an operate test of the marker FCG relay.	25
		X. Second Trial: This test checks that the marker cancels the functions controlled by the CON and GT relays on second trial.	25
		Y. Ground Sleeve (Number Check Calls Only): This test checks the portion of the sleeve leads used during number checking calls for grounds or crosses.	26

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Z. Time Measure Features: This test checks that the marker will time out and seize the trouble indicator when trouble is encountered in any of its timing stages.	26	circuit when a DID-LLP station number is called.	33
AA. Channel Test: This test checks that the marker will select channels in order of preference.	28	AI. Unassigned, Blank, and Intercepted Numbers (AIS-LLP Provided): This test checks the ability of the marker and marker applique circuit to route a call to an unassigned, blank, or intercepted number to the proper line circuit, and provide the outpulsing sender with proper class indications.	34
AB. Unequipped Numbers (AIS Not Provided): This test checks that the marker will route to the proper group of intercept trunks on calls to unequipped numbers.	29	AJ. Verify LLP Line Circuit Cross-Connections (AIS Provided): This test verifies the line circuit cross-connections. It also verifies the office code generated by the terminating marker applique.	35
AC. Trouble Reorder: This test checks the operation of the trouble reorder feature of the marker when the TRO jack is used.	29	AK. Direct-in-Dialing, No. 101 ESS: This test checks the ability of the marker and marker applique circuits to route calls properly when a DID call to a No. 101 ESS is handled.	35
AD. Test of Registration Chain Circuit for Crosses (Marker Applique Not Provided): This test checks the marker frame, office, numerical, checking, reorder, and second trial registration relays for crosses.	30	AL. Blank, Plugged Up, and Changed Numbers-AIS Without LLP Provided: This test checks the ability of the marker and marker applique to provide proper class of intercept on blank, plugged up, and changed numbers when the automatic control and connector circuit (AIS without LLP) is provided.	38
AE. Second Trial Failure: This test checks the ability of the marker to register overflow after second trial failure.	31	AM. Calling Line Identification: This test checks the ability of the marker to display a calling line identification call at the terminating trouble indicator or record the call on the ANI trouble ticketer.	40
AF. Trunk Identification: This test checks the ability of the marker to display an incoming trunk on a receiving lead failure.	31	AN. Misdirected Calls to Number Group Address of Line Circuits-LLP or Direct Access to No. 101 ESS Provided: This test checks the ability of the marker when LLP or direct access to No. 101 ESS is provided, to route to intercept misdirected calls to the number group address of a line circuit.	41
AG. Test of Registration Chain Circuit for Crosses (Marker Applique Provided): This test checks the marker frame, office, checking, reorder, and second trial registration relays, and the numerical auxiliary registration relays in the marker applique circuit for crosses.	32		
AH. Direct-in-Dialing, Line Link Pulsing: This test checks the ability of the marker and marker applique circuit to route a call to the proper line			

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1.04 When tests are being made on a routine basis, they should be made during periods of light traffic since it is necessary to remove a marker from service and to use the trouble indicator making it unavailable to record a service trouble.

1.05 In describing these tests, only one operation of the ST key (or the white button of a 32A test set) to start the test call is mentioned for each test. However, it may be desirable to start and release test calls a number of times in order to observe different relays, or to make other observations on a number of test calls, rather than block a sufficient number of relays to observe all of the operations on one test call.

1.06 Where marker speedup features are provided, Tests A, D, H, I, J, L, S, U, V, W, X, and AA will detect an open sleeve at the LDF or within the marker and cause the XOS lamp to be lighted. Any of these tests may be used if a specific trouble involving an open sleeve is being investigated. Operating an NS_ key or inserting a plug into an NS jack cancels the open sleeve detection feature.

1.07 Lettered Steps: A letter a, b, c, etc, added to a step number in Parts 3 and 4 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.

2. APPARATUS

2.01 The apparatus required for each test is shown in Table A. The details for each item are covered in the indicated paragraphs.

2.02 322A make-busy plugs.

2.03 349A make-busy plugs.

2.04 329A make-busy plugs.

2.05 347A make-busy plugs.

2.06 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord) and two 365 tools.

2.07 32A test set.

2.08 KS-3008 stopwatch or equivalent.

2.09 442A tool equipped with 2Y lamp and two 419A connecting clips.

2.10 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord), one 365 tool and one 419A tool.

3. PREPARATION

All Tests

STEP	ACTION	VERIFICATION
1a	If making a test on marker or marker applique— At trouble indicator— Insert 329A make-busy plug into DB_ jack of associated marker. <i>Note:</i> When a make-busy plug is in the DB_ jack of a special marker, a special service call on the companion marker may interfere with a special test call that may be in progress on the marker under test. In this event, release the trouble indicator and then restart the test call.	

STEP

ACTION

VERIFICATION

TABLE A

TEST	APPARATUS NUMBER REQUIRED FOR TEST								
	MAKE- BUSY PLUGS (2.02)	MAKE- BUSY PLUGS (2.03)	MAKE- BUSY PLUGS (2.04)	MAKE- BUSY PLUGS (2.05)	TEST CORD (2.06)	TEST SET (2.07)	STOP- WATCH (2.08)	442A (2.09)	TEST CORD (2.10)
A , B	1								
C	*								
D	1								
E through G	*								
H , I	1								
J	3	10	→1←		1				
K through M	1								
N	*								
O	1								
P through R	*								
S	1								
T	*								
U through X	1								
Y	*								
Z	1					1	1		
AA	1	10							
AB	1								
AC	2		→1←			1			
AD	1					1		1	1
AE , AF	1								
AG	1					→1←		1	
AH , AL	1		2						
AI , AJ	1								
AK	1	1	2						
AM	1			1					
AN	1								

* Plugs as required if NS- jacks are provided.

- 2b If trouble indicator is to be made busy to any marker—
Insert make-busy plug into associated TIB_ jack.
- 3 Operate F_ key or set F switch and, if required, F10 key.

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STEP	ACTION	VERIFICATION
	Note: The setting of these keys or the F switch may be changed to provide a check of all frame indications. The F10 key may be used to provide office differentiation when ten or less incoming frames are provided.	
4	Operate FS, MAN, or TOL key.	
	Note: The setting of these keys may be changed to indicate the class of trunk being simulated.	
5	Operate LP key.	
6	Operate MT_ key corresponding to marker being tested.	
7c	If theoretical offices are provided— Operate IP, IT, or PT key to match directory number being tested.	
8d	If markers are arranged to serve two offices— Operate OAB, if required, to match directory number being tested.	
	Note: F10 key may be used to provide office differentiation in some cases where 10 or less incoming frames are provided.	
9e	◆If office is equipped with automatic trouble analysis and a printout is not required— Insert 329A plug into CATA jack.	CATA lamp lighted.◆

4. METHOD

STEP	ACTION	VERIFICATION
A. Individual Lines and Tip and Ring Parties of 2-Party Lines (Including Tests for Discrimination Between Physical and Theoretical ◆Numbers◆ and Also Between Office A and Office B)		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory number to be tested.	
11	Momentarily operate ST key.	When marker is seized— Associated MB_ lamp lighted. Proper NGC_, LCF, and LLG_ lamps lighted. Any CH_ lamp lighted. RL lamp lighted. See paragraph 1.06.

STEP	ACTION	VERIFICATION
12	Momentarily operate RL key.	All lamps extinguished.
13c	If theoretical offices are provided— Operate IP or IT key so that trunk and number classifications do not agree.	
14c	Momentarily operate ST key.	Call routes to intercept.
15c	Momentarily operate RL key.	
16	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
17e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆
B. PBX Having All Its Lines Within One Twenty Block		
10	Operate TH_ , H_ , T_ , and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory number of PBX group in which all terminals appear in a single twenty block.	
11	Operate NS_ keys (or insert 322A plugs into NS_ jacks, if provided) corresponding to all except last terminal of group.	
12	Momentarily operate ST key.	L_ lamp lighted corresponds to last terminal of PBX group.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore NS_ keys (or remove plugs from NS_ jacks).	
15	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
16e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆
C. End-of-Block Hunt		
10	Operate TH_ , H_ , T_ , and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory or intermediate number of PBX group in which terminals appear in two or more twenty blocks.	

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STEP	ACTION	VERIFICATION
	<i>Note:</i> Terminal of number used for test should be in first twenty block.	
11	Operate NS_ keys (or insert 322A plugs into NS_ jacks, if provided) corresponding to terminal selected, remainder of terminals in first twenty block, and also several of lowest numbered terminals of next twenty block.	
12	Momentarily operate ST key.	L_ lamp lighted corresponds to first idle terminal of block reached by end of block hunting.
13	Repeat Steps 10, 11, and 12 using PBX groups in which terminals appear in twenty blocks to be tested.	
14	Momentarily operate RL key.	All lamps extinguished.
15	Restore NS_ keys (or remove plugs from NS_ jacks).	
16	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
17e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

D. Jump Hunt

10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to jump number of PBX group arranged for jump hunting.	
11	Momentarily operate ST key.	Lamps lighted indicate first idle terminal in location to which jump hunt was made. See paragraph 1.06.
12	Momentarily operate RL key.	All lamps extinguished.
13	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
14e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

STEP	ACTION	VERIFICATION
E. Jump Hunt After End-of-Block Hunt		
	<p>Note: To perform this test, select PBX group arranged as follows:</p> <p>(a) Terminal numbers of PBX distributed over three or more twenty blocks, two of which are regular number twenty blocks and one an extra number twenty block.</p> <p>(b) From a twenty block standpoint, the terminal number from which jump is made is lower than terminal number to which jump is made.</p> <p>Example: PBX numbers are 1720 through 1749. Extra numbers are 0215 through 0219. Operate NS_ keys (or insert plugs into NS_ jacks) 19 and 0 through 8. Call made to 1739.</p>	
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to last number in next to last twenty block of regular listed PBX numbers of PBX group selected for test.	
11	Operate NS_ keys (or insert 322A plugs into NS_ jacks, if provided) to make busy last number in next to last twenty block of regular listed PBX numbers and all numbers in last twenty block of regular listed PBX numbers except jump hunt terminal.	
12	Momentarily operate ST key.	Lamps lighted indicate first idle extra number terminal in location to which jump was made.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all operated keys and switches to normal and remove plugs from DB_ and NS_ jacks.	
15e	<p>◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.</p>	CATA lamp extinguished.◆

STEP	ACTION	VERIFICATION
F. Jump Hunt Before End-of-Block Hunt		
Note: To perform this test, select PBX group arranged as follows:		
(a) Terminal numbers of PBX group distributed over three or more twenty blocks, two of which are extra number twenty blocks.		
(b) From a twenty block standpoint, the terminal number from which jump is made is lower than terminal to which jump is made.		
Example: PBX numbers are 1900 through 1909. Extra numbers are 0410 through 0425. Operate NS_ keys (or insert plugs into NS_ jacks) 10 through 19. Call made to 1909.		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to jump number of PBX group selected for test.	
11	Operate NS_ keys (or insert 322A plugs into NS_ jacks, if provided) to make busy all terminal numbers in first extra number twenty block.	
12	Momentarily operate ST key.	Lamps lighted indicate first idle extra number terminal in second extra number twenty block in location to which jump was made.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all operated keys and switches to normal and remove plugs from DB_ and NS_ jacks.	
15e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
G. Split Hundreds		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory or intermediate number of PBX group in which terminals appear in nonconsecutive twenty blocks.	
Note: Terminal of number used for test should be in first twenty block.		

STEP	ACTION	VERIFICATION
11	Operate NS_ keys (or insert 322A plugs into NS_ jacks, if provided) corresponding to terminal selected, remainder of terminals in first twenty block, and also several of lowest numbered terminals of next twenty block in order of testing.	
12	Momentarily operate ST key.	L_ lamp lighted corresponds to first idle terminal of block reached by marker by end of block hunting.
13	Momentarily operate RL key.	
14	Repeat Steps 10 through 13, using PBX groups in which terminals appear in twenty blocks to be tested.	
15	Restore NS_ keys (or remove plugs from NS_ jacks).	
16	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
17e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

H. PBX Allotter

PBX Alternate Number Group Allotter

Note: This test should be performed during a period of light traffic at the PBX.

10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory number of PBX group which is divided into two terminal hunting groups, one each in different number group connectors.	
11	Momentarily operate ST key.	AL1 or AL2 lamp lighted. Note: AL1 and AL2 lamps light alternately on successive calls. AL and proper NGC_ lamps lighted. See paragraph 1.06.
12	Momentarily operate RL key.	All lamps extinguished.
13	Repeat Steps 11 and 12.	

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STEP	ACTION	VERIFICATION
14f	<p>If PBX groups are arranged with all lines having number appearances in allotment AL1 and bridged terminals reaching the same lines in allotment AL2— Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory number of PBX group using this arrangement.</p>	AL1 or AL2 lamp lighted.
15f	Momentarily operate ST key.	<p>Note: AL1 and AL2 lamps light alternately on successive calls. NAL and proper NGC_ lamps lighted. Lighted lamps indicating line location are same for both allotment AL1 and AL2.</p>
16f	Momentarily operate RL key.	All lamps extinguished.
17f	Repeat Steps 15f and 16f.	
PBX Block Allotter		
18g	<p>If PBX block allotter circuit is provided— Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory number of PBX group arranged for block allotter operation.</p> <p>Note: This test should be performed during a period when least terminating traffic is being offered to the PBX.</p>	
19g	Momentarily operate ST key.	<p>NGC_, HB_, TB_, and L_ lamps indicate location of line in allotted block preferred by marker under test.</p>
20g	Momentarily operate RL key.	All lamps extinguished.
21g	<p>At associated block allotter circuit— Block operated BSA and BSB relays first in sequence of marker under test.</p>	
22g	Momentarily operate ST key.	<p>NGC_, HB_, TB_, and L_ lamps indicate location of line in next preferred block of marker under test.</p>
23g	Momentarily operate RL key.	All lamps extinguished.
24g	<p>Repeat Steps 21g through 23g for each remaining block allotter of selected PBX group except last in sequence of marker under test.</p>	

STEP	ACTION	VERIFICATION
25g	At associated block allotter— Block operated BSA and BSB relays last in sequence of marker under test.	
26g	Momentarily operate ST key.	BB, ATB, and ALG lamps lighted.
27g	Remove blocking tools from all BSA and BSB relays.	
28g	Momentarily operate RL key.	All lamps extinguished.
29g	At associated auxiliary line circuit— Block operated all SL_ relays associated with block allotter preferred by marker under test.	At associated block allotter circuit— BSA and BSB relays operate.
30g	Remove blocking tools from SL_ relays.	BSA and BSB relays release.
31g	Repeat Steps 29g and 30g for each remaining block allotter of selected PBX group in sequence of marker under test.	
32g	At associated PBX block register circuit— Insulate 7B and 8B contacts of first ALG_ relay associated with marker under test.	
33g	Momentarily operate ST key.	XALG lamp lighted.
34g	Remove insulator from ALG_ relay.	
35g	Momentarily operate RL key.	All lamps extinguished.
36g	At associated PBX block register circuit— Insulate 1B and 2B contacts of NK2 relay.	
37g	Momentarily operate ST key.	NGC_ lamp does not light.
38g	Remove insulator from NK2 relay.	
39g	Momentarily operate RL key.	All lamps extinguished.
40	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
41e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

I. Free Lines

- 10 Operate TH_, H_, T_, and U_ keys (or set
TH, H, T, and U switches, if provided)

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STEP	ACTION	VERIFICATION
	corresponding to number assigned to give free service.	
11f	If selected line is in nonallotted twenty block— Momentarily operate ST key.	NAL and FL lamps lighted. See paragraph 1.06.
12g	If selected line is in allotted twenty block— Momentarily operate ST key.	AL and FL lamps lighted.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
15e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

J. PBX Retest

No Channel Available to First Selected Line

10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory number of PBX group arranged for terminal hunting.	
11	At line link frame— Insert 349A make-busy plugs into SS0 to SS9 jacks of horizontal group in which called line is located. Caution: Remove make-busy plugs immediately upon completion of each test to prevent interference with service.	
12	At terminating marker— Short-circuit 2B and 3B contacts of MT1 relay.	
13	◆At trouble indicator—◆ When line used for test is idle— Momentarily operate ST key.	Lamps lighted indicate line link frame seized is other than one in which called line appears. Line seized is not one made busy by operated LB_ relay in marker. See paragraph 1.06.
14	Momentarily operate RL key.	All lamps extinguished.
15	Repeat Steps 11 through 14 calling in succession second, third, and fourth lines in PBX group under test.	

STEP	ACTION	VERIFICATION
	Note: To test all paths controlled by LB0-3 relays in marker, repeat test on each line of twenty line PBX group having all lines in one twenty block or select more than one PBX group to accomplish the same purpose.	
16	◆At terminating marker—◆ Remove short circuit from MT1 relay contacts.	
Terminal Hunting Line Fails to Satisfy GT Relay Test		
17	◆At trouble indicator—◆ Insert 329A plugs into CCT_ jack of marker under test and a 322A plug into the PBX jack.	
18	Operate PBX key.	
19	Repeat Step 10.	
20	When line used for test is idle— Momentarily operate ST key.	Lamps lighted indicate call terminated to another line in same PBX group.
21	Momentarily operate RL key.	All lamps extinguished.
22	Operate GT key.	
23	When line used for test is idle— Momentarily operate ST key.	Lamps lighted indicate GT relay failure. OF lamp lighted.
24	Remove plugs from CCT and PBX jacks.	
25	Momentarily operate RL key.	All lamps extinguished.
26	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
27e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

K. Reorder

10	Operate RO and MAN keys.	
11	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any working individual line.	
12	Momentarily operate ST key.	OF lamp lighted.
13	Momentarily operate RL key.	All lamps extinguished.

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STEP	ACTION	VERIFICATION
14e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
L. Intercept (AIS Not Provided)		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to nonworking line. (NF and NC cross-connections removed at block relay frame.)	
11	Operate FS key.	
12	Momentarily operate ST key.	LIN lamp lighted. See paragraph 1.06.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore FS and operate MAN keys.	
15	Repeat Steps 12 and 13.	
16	Restore MAN and operate TOL keys.	
17f	If recorded intercept is not provided— Momentarily operate ST key.	TIN lamp lighted.
18g	If recorded intercept is provided— Momentarily operate ST key.	LIN lamp lighted.
19	Momentarily operate RL key.	All lamps extinguished.
20	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any changed number. (NC cross-connection removed and NF cross-connection made to OPR terminal at block relay frame.)	
21	Momentarily operate ST key.	TIN lamp lighted.
22	Momentarily operate RL key.	All lamps extinguished.
23	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
24e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦

STEP	ACTION	VERIFICATION
M. Trouble Intercept (AIS Not Provided)		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any working individual line.	
11	Operate FS and PU keys.	
12	Momentarily operate ST key.	LTI lamp lighted.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore FS and operate MAN keys.	
15	Repeat Steps 12 and 13.	
16	Restore MAN and operate TOL keys.	
17	Momentarily operate ST key.	TTI lamp lighted.
18	Momentarily operate RL key.	All lamps extinguished.
19	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
20e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
N. Busy Lines		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any working individual line.	
11	Operate NS_ key (or insert 322A plug into NS_ jack, if provided) corresponding to called line terminal in twenty block.	
12	Momentarily operate ST key.	BB lamp lighted.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore NS_ key (or remove plug from NS_ jack).	
15f	If markers are wired to return busyback on calls to coin lines having receiver off hook— Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to number of a working coin line in office.	

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STEP	ACTION	VERIFICATION
16f	Remove receiver from hook of coin line to be used for test.	
17f	Remove plug from CCT_ jack.	
18f	Operate TR2 and GT keys.	
19f	Momentarily operate ST key.	BB lamp lighted. <i>Note:</i> In some cases the OF lamp may light or a ground test failure may be indicated instead of the BB lamp, depending on local arrangements.
20f	Momentarily operate RL key.	All lamps extinguished.
21f	Replace receiver on hook of coin line used for test.	
22f	Insert 329A plug into CCT_ jack.	
23	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
24e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

O. Overflow Test

10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to number assigned for testing incoming overflow signal.	
11	Momentarily operate ST key.	OF lamp lighted.
12	Momentarily operate RL key.	All lamps extinguished.
13f	If direct-in-dialing, LLP service is provided— Set TH, H, T, and U switches corresponding to PBX extension number assigned for testing DID-LLP incoming overflow signal.	
14f	Set up DID-LLP code by operating OAB key or inserting make-busy (329A) plugs in NSS jacks. <i>Note:</i> Consult local records to determine DID-LLP code for the selected number.	
15f	Momentarily operate ST key.	OF lamp lighted.

STEP	ACTION	VERIFICATION
16f	Momentarily operate RL key.	All lamps extinguished.
17	Restore all operated keys or switches to normal and remove plug from DB_ jack and NSS jacks.	
18e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

P. Number Check (Special Markers Only)

Local Number Check

10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any working individual line.	
11	Operate NX_ key (or insert plug into NS_ jack, if provided) corresponding to called line terminal in twenty block.	
12	Operate MAN, NCL and NCF keys.	
13	Momentarily operate ST key.	RC and RV lamps lighted.
14	Momentarily operate RL key.	All lamps extinguished.
15	Restore NS_ key (or remove plug from NS_ jack).	
16	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory number of PBX group arranged for end of block hunting and having one or more lines in first twenty block with tens and units digits different from those of any lines in second twenty block.	
17	Operate NS_ key (or insert 322A plug into NS_ jack, if provided) corresponding to a line in second twenty block having different tens and units digits from any lines in first twenty block.	
18	Momentarily operate ST key.	RC and RV lamps lighted.
19	Momentarily operate RL key.	All lamps extinguished.
20	Restore NS_ key (or remove plug from NS_ jack).	

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STEP	ACTION	VERIFICATION
21	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory number of PBX group arranged to jump hunt in which lines jumped to do not have tens and units digits like tens and units digits of lines from which jump was made.	
22	Operate NS_ key (or insert plug into NS_ jack, if provided) corresponding to a line jumped to other than first line.	
23	Momentarily operate ST key.	RC and RV lamps lighted.
24	Momentarily operate RL key.	All lamps extinguished.
25	Restore NS_ key (or remove plug from NS_ jack).	
26	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to directory number of PBX group arranged for alternate number group allotment and having one or more lines in each allotted group with tens and units digits different from any lines in other group.	
27	Operate NS_ key (or insert 322A plug into NS_ jack, if provided) corresponding to line in allotment AL2 having tens and units digits different from lines in allotment AL1.	
28	Momentarily operate ST key.	RC, RV, and AL2 lamps lighted.
29	Momentarily operate RL key.	All lamps extinguished.
30	Restore NS_ key (or remove plug from NS_ jack).	
Toll Number Check		
31	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to individual line.	
32	Operate NS_ key (or insert 322A plug into NS_ jack, if provided) corresponding to called line terminal in twenty block.	
33	Restore MAN, NCL, and NCF keys.	

STEP	ACTION	VERIFICATION
34f	If marker is not arranged to short-circuit CTT and CTL leads— Operate TOL and NCT keys and F_ key (or set F switch, if provided) corresponding to incoming frame on which toll number check trunks appear.	
35g	If marker is arranged to short-circuit CTT and CTL leads— Operate TOL and NCL keys and F_ key (or set F switch, if provided) corresponding to incoming frame on which toll number check trunks appear.	
36	Momentarily operate ST key.	RC and RV lamps lighted.
37	Momentarily operate RL key.	All lamps extinguished.
38	Restore NS_ key (or remove plug from NS_ jack).	
39	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
40e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
Q. No Test (Special Markers Only)		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any working individual line.	
11	Operate NS_ key (or insert 322A plug into NS_ jack, if provided) corresponding to called line terminal in twenty block.	
12	Operate NT, MAN, and any LL_ key (or set LL switch, if provided) at any number.	
13	Momentarily operate ST key.	Lighted CH_ lamp corresponds to operated LL_ key or setting of LL switch.
14	Momentarily operate RL key.	All lamps extinguished.
15	Restore NS_ key (or remove plug from NS_ jack).	
16	Restore all operated keys and switches to normal and remove plug from DB_ jack.	

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STEP	ACTION	VERIFICATION
17e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

R. No Hunt (Special Markers Only)

10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to intermediate line of PBX group.	
11	Operate NS_ key (or insert 322A plug into NS_ jack, if provided) corresponding to called line terminal in twenty block.	
12	Operate NH and MAN keys.	
13	Momentarily operate ST key.	BB lamp lighted.
14	Momentarily operate RL key.	All lamps extinguished.
15	Restore NS_ key (or remove plug from NS_ jack).	
16	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
17e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

S. Regular (Special Markers Only)

10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any ring party line.	
11	Operate NN and MAN keys.	
12	Momentarily operate ST key.	RC lamp lighted. See paragraph 1.06.
13	Momentarily operate RL key.	All lamps extinguished.
14	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any tip party line.	
15	Momentarily operate ST key.	RV and RC lamps lighted.
16	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
17f	If PBX lines arranged for outward service only are provided— Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to one of these lines.	•
18f	Momentarily operate ST key.	RF and RC lamps lighted.
19f	Momentarily operate RL key.	All lamps extinguished.
20	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
21e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
T. Extra Numbers		
10f	If HB_ and TB_ keys are provided— Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any assigned extra number.	
11f	Operate associated HB_ (usually HB-24) and TB_ keys.	
12f	Operate NS_ key (or insert 322A plugs into NS_ jacks, if provided) for all terminals up to, but not including, terminal under test.	
13f	Momentarily operate ST key.	Lighted lamps indicate proper frame, line, horizontal group, and ringing control.
14f	Momentarily operate RL key.	All lamps extinguished.
15g	If special markers are arranged to test extra numbers from test desk— Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any assigned extra number.	
16g	Operate NHX and MAN keys.	
17g	Momentarily operate ST key.	Lighted lamps indicate proper frame, line, horizontal group and ringing control.
18g	Momentarily operate RL key.	All lamps extinguished.
19g	Repeat Steps 16g through 18g, operating on successive calls, NTX and NNX keys instead of NHX key.	

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STEP	ACTION	VERIFICATION
20	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
21e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

U. CON Relay Test

10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any ring party line.	
11	Momentarily operate ST key.	CON lamp lighted. See paragraph 1.06.
12	Momentarily operate RL key.	All lamps extinguished.
13	Operate TC key.	
14	Repeat Steps 11 and 12.	
15	Restore TC and operate TVT key.	
	<i>Note:</i> TVT key operation is for use only where ringing voltage is 86 volts minimum and 87 volts maximum.	
16	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any tip party line.	
17	Operate RV key.	
18	Repeat Steps 11 through 14.	
19	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
20e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

V. GT Relay Test

10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any working individual line.	
11	Operate GT key.	
12	Remove plug from NPC jack.	

STEP	ACTION	VERIFICATION
13	Momentarily operate ST key.	FC lamp lighted. See paragraph 1.06.
14	Momentarily operate RL key.	All lamps extinguished.
15	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
16e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆
W. FCG Relay Test		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any working line.	
11	Operate FCG key.	
12	Momentarily operate ST key.	FCG and LTR lamps lighted. See paragraph 1.06.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
15e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆
X. Second Trial		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any working individual line.	
11	Operate GT and TR2 keys.	
12	Momentarily operate ST key.	GT2 and RL lamps lighted.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
15e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

STEP	ACTION	VERIFICATION
Y. Ground Sleeve (Number Check Calls Only)		
10	Operate GS key.	
11	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any working individual line.	
12	Operate NS_ key (or insert 322A plug into NS_ jack, if provided) corresponding to called line terminal in twenty block.	
13	Operate MAN, NCL, and NCF keys.	
14	Momentarily operate ST key.	GS lamp not lighted.
15	Momentarily operate RL key.	All lamps extinguished.
16	Restore NS_ key (or remove plug from NS_ jack).	
17	Repeat Steps 11 through 16 using test line numbers corresponding to each sleeve lead in marker.	
18	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
19e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
Z. Time Measure Features		
10	Momentarily operate ST key for each test condition in Table B. As shown in Table B, operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) and block or insulate marker relays as indicated. Note: Momentarily operate RL key to release trouble indicator after each condition checked and remove blocking tools and insulator.	Marker under test times out and seizes trouble indicator in approximate time shown in Table B.
11	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
12e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦

TABLE B

CONDITIONS	LINE TESTED	BLOCK RELAY		INSULATED		APPROXIMATE TIME OUT PERIOD	NOTE	TIMING STAGE
		OPERATED	NON-OPERATED	CONTACT	RELAY			
1	Individual	CK1				1.2 to 2.5 Sec.		First
2		CK2						
3		CK3	TML1					
4			CK1 CK2 CK3					
5			CK4					
6					1B			
7	Individual with U-O		L-O			1.2 to 2.5 Sec.		Second
8	Individual		NK			7.7 to 9 Sec.		Third—After Registration
9	Ring Party Line		IK1			7.7 to 9 Sec.		Third—After Line Test
10	Intermed PBX Line		IK1					
11	Tip Party Line		IK1					
12	Unassigned Line		IN					
13	Individual		MKO			1.2 to 3.8 Sec.		Fourth
14			GLH MKO					
15	Individual		SL1			2.5 to 3.8 Sec.		Fifth
16	Individual		TR			1.3 Seconds after TM6 Relay Operates	1	Sixth
17	No Numerical Keys or Switches Off		TMW			28 to 58 Sec.	2	Long Time Out
18	Individual		SRL			2 to 3 Sec.	3	Recorder

Note 1: DT lamp at trouble indicator, TMA lamp at marker applique, and marker TA lamp light. Major alarm sounds. Momentarily operate marker AR key to retire lamps and alarm.

Note 2: MB and DT lamps at trouble indicator, TMA lamp at marker applique, and marker TA lamp light and major alarm sounds. Momentarily operate marker AR key to retire lamps and alarm.

Note 3: Operate RO key at trouble indicator frame.

STEP	ACTION	VERIFICATION
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AA. Channel Test

Note: In this test it is assumed that channel preference is 0, 2, 1, 3 to 9. When a different preference is used, the channels should be made busy in the proper order.

- | | | |
|----|---|--|
| 10 | Momentarily operate ST key for each test condition shown in Table C, using individual line for test and making channels busy as indicated at incoming link frame corresponding to operated F_ key (or setting of F switch, if provided) at trouble indicator and line link frame on which called line terminates. | Proper CH_ lamp lighted (see Table C). |
|----|---|--|

Caution: To prevent interference with service, remove make-busy plugs from SS-jacks for approximately one second between test calls.

TABLE C

CONDITION	INC LINK FRAME – 349A PLUG IN SS – JACK	LINE LINK FRAME – 349A PLUG IN SS –JACK	TBLE. IND. FRAME— CH- LAMP LIGHTED
1	0		2
2	0,2		1
3	0-2		3
4	0-3		4
5	0-4		5
6	0-5		6
7	0-6		7
8	0-7		8
9	0-8		9
10		0	2
11		0,2	1
12		0-2	3
13		0-3	4
14		0-4	5
15		0-5	6
16		0-6	7
17		0-7	8
18		0-8	9

STEP	ACTION	VERIFICATION
	Note: Momentarily operate RL key to release trouble indicator after each condition checked.	
11	Remove plugs from SS_ jacks.	
12	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
13e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
AB. Unequipped Numbers (AIS Not Provided)		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any unequipped line.	
11	Operate FS key.	
12	Momentarily operate ST key.	LIN lamp lighted.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore FS and operate MAN keys.	
15	Repeat Steps 12 and 13.	
16	Restore MAN and operate TOL keys.	
17f	If recorded intercept is not provided— Momentarily operate ST key.	TIN lamp lighted.
18g	If recorded intercept is provided— Momentarily operate ST key.	LIN lamp lighted.
19	Momentarily operate RL key.	All lamps extinguished.
20	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
21e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
AC. Trouble Reorder		
10	Insert 329A plug into TRO jack.	
11	Block nonoperated marker MKO relay.	

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STEP	ACTION	VERIFICATION
12	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any assigned line.	
13	Momentarily operate ST key.	Marker relays TRO1, TM6, TRO, and OF operated. TC, RV, RC, CON, GT2, RL, and TRL lamps lighted.
14	Remove plug from TRO jack and blocking tool from marker MKO relay.	
15	Momentarily operate RL key.	All lamps extinguished.
16	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
17e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
AD. Test of Registration Chain Circuit for Crosses (Marker Applique Not Provided)		
10	♦At terminating marker—♦ Block nonoperated marker F1, CK4, CK5, TMW, and TMB relays.	
11	Connect 442A tool between 48-volt battery and 8T spring of marker TR2 relay.	
12	♦At trouble indicator—♦ Operate TH_, H_, T_, and U_ keys or set TH, H, T, and U switches, if provided, corresponding to any assigned line.	
13	♦At terminating marker—♦ Momentarily operate ST key ♦of 32A test set plugged into F jack.♦	Test lamp does not light.
14	Remove blocking tool from F1 relay.	Test lamp lighted.
15	Momentarily operate CON1 relay.	Test lamp extinguished while relay is operated.
16	Momentarily operate RL key.	All lamps extinguished.
17	Repeat test using F2, F4, F5, F10, F10', OAB, TH1, TH2, TH4, TH8, H1, H2, H4, H5, H5', T1, T2, T4, T5, U1, U2, U4, U5, CK1, CK2, CK3, RO, TR1, and TR2 relays on successive calls instead of F1 relay.	

STEP	ACTION	VERIFICATION
	<i>Note:</i> If TR3 relay is U-729 type, substitute this relay for TR1 relay in Step 17.	
18	On completion of test, remove 442A tool connections and all blocking tools.	
19	Momentarily operate ST key.	Marker operates satisfactorily.
20	Momentarily operate RL key. ◆Remove 32A test set plug from F jack.	
21	At trouble indicator—◆ Restore all operated keys to normal and remove plug from DB_ jack.	
22e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆
AE. Second Trial Failure		
10	Operate TH_, H_, T_, and U_ keys (or set TH, H, T, and U switches, if provided) corresponding to any working number.	
11	Operate OFL and TR2 keys.	
12	Momentarily operate ST key.	TR2 and OF lamps lighted.
	<i>Note:</i> A failure could be caused by a traffic delay at incoming link. In the event of a failure, make repeated tests.	
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all operated keys and remove plug from DB_ jack.	
15e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆
AF. Trunk Identificaion		
10	Operate H-, T-, U- keys (or set H, T, and U switches, if provided) to any working number. Leave TH key or switch normal.	
11	Operate TI key.	
12	Momentarily operate ST key.	F lamp lighted, corresponding to setting of F key or switch.

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STEP	ACTION	VERIFICATION
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
15e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆
AG. Test of Registration Chain Circuit for Crosses (Marker Applique Provided)		
10	◆At terminating marker—◆ Block nonoperated marker F1 relay.	
11	Block nonoperated marker relays CK4, CK5, TMW, and TMB.	
12	Connect 442A tool between 48-volt battery and 7T of RO relay.	
13	◆At trouble indicator—◆ Set up any assigned line number on TH, H, T, and U switches.	
14	◆At terminating marker—◆ Momentarily operate ST key ◆of 32A test set plugged into F jack.◆	Lamp in 442A tool not lighted.
15	Remove block from F1 relay.	Lamp in 442A tool lighted.
16	Momentarily operate CON-1 relay.	Lamp extinguished while relay is operated.
17	Momentarily operate RL key.	
18	Repeat Steps 10, 14, and 15, using F2, F4, F5, F10, TR1, TR2, OAB, CK1, CK2, CK3, and RO relays on successive calls instead of F1 relay.	
	<i>Note:</i> If TR3 relay is U729 type, substitute this relay for TR1 in Step 18.	
19	Repeat Steps 10, 14, and 15, using THA1, THA2, THA4, THA8, HA1, HA2, HA4, HA5, HA5', TA5, TA4, TA2, TA1, UA1, UA2, UA4, UA5 relays in the marker applique circuit instead of the F1 relay. To facilitate this step, remove the 442A tool between 48-volt battery and 7T spring of marker RO relay and place it between 48-volt battery and 5M	

STEP	ACTION	VERIFICATION
	contact of UA5 relay in the marker applique circuit.	
20	On completion of test— Remove 442A tool connections and all blocking tools. ♦Remove 32A test set plug from F jack.	
21	At trouble indicator—♦ Start test call.	Marker operates satisfactorily.
22	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
23e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
AH. Direct-in-Dialing, Line Link Pulsing		
10	Set up a working PBX extension number of any DID-LLP customer on the TH, H, T, and U switches.	
11	Set up the DID-LLP code by operating the OAB key or inserting 329A make-busy plugs in the NSS_ jacks. <i>Note:</i> Consult local records to determine DID-LLP code for customer selected in Step 10.	
12	Momentarily operate ST key.	THC_, HC_, TC_, and UC_ lamps lighted to display number group address of customer selected in Step 9. A_, B_, C_, D_ lamps lighted, corresponding with settings of TH, H, T, and U switches.
13	Momentarily operate RL key.	All lamps extinguished.
14	Set up a number which has been changed in the DID translator on the TH, H, T, and U switches.	
15	Momentarily operate ST key.	CHG lamp lighted.
16	Momentarily operate RL key.	All lamps extinguished.
17	Set up a number which is blank in the DID translator on the TH, H, T, and U switches.	
18	Momentarily operate ST key.	BLK lamp lighted.

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STEP	ACTION	VERIFICATION
19	Momentarily operate RL key.	All lamps extinguished.
20	Restore OAB key or remove plugs from NSS jacks as required to set up a POTS call.	
21	Set up a working PBX extension number of any DID-LLP customer on the TH, H, T, and U switches.	
22	Momentarily operate ST key.	LIN lamp lighted.
23	Momentarily operate RL key.	All lamps extinguished.
24	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
25e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
A1. Unassigned, Blank, and Intercepted Numbers (AIS with LLP Provided)		
10	Using the TH, H, T, and U switches, set up an unassigned number (no NF and NC cross-connections on BR frame).	
11	Momentarily operate ST key.	TIN and CLC lamps lighted. A_, B_, C_, D_ lamps correspond to TH, H, T, and U switches lighted.
12	Momentarily operate RL key.	All lamps extinguished.
13	Using the TH, H, T, and U switches, set up a blank number (nonexisting FH_ or HN_ relay).	
14	Momentarily operate ST key.	LIN and CLC-0 lamps lighted. A_, B_, C_, D_ lamps corresponding to TH, H, T, and U switches lighted.
15	Momentarily operate RL key.	All lamps extinguished.
16	Using the TH, H, T, and U switches, set up an intercepted number requiring referral (NF cross-connected to OPR on BR frame).	
17	Momentarily operate ST key.	TIN and CLC-3 lamps lighted. A_, B_, C_, D_ lamps corresponding to TH, H, T, and U switches lighted.
18	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
19	Set up a working individual number on the TH_, H_, T_, and U_ switches.	
20	Operate PU key.	
21	Momentarily operate ST key.	LTI, CLC-1 lamps lighted. A_, B_, C_, D_ lamps lighted corresponding to TH, H, T, and U switches.
22	Momentarily operate RL key.	All lamps extinguished.
23f	If marker group serves tip party lines— Operate RV key.	
24f	Repeat Steps 21 and 22.	
25	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
26e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆
AJ. Verify LLP Line Circuit Cross-Connection (AIS Provided)		
10	Set up a number corresponding to a LLP line circuit on the TH, H, T, and U switches.	
11	Using special marker, operate NH key.	
12	Momentarily operate ST key.	CL_, TN_ lamps lighted according to line circuit cross-connections. AR_, BR_, CR_ lamps lighted according to office code generated. Note: Consult office records for verification.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
15e	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆
AK. Direct-in-Dialing, No. 101 ESS		
10	Set up a working PBX extension number of any DID-ESS customer on the TH, H, T, and U switches.	

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STEP	ACTION	VERIFICATION
11	Set up the DID-ESS code by operating the OAB key or inserting 329A make-busy plugs in the NSS_ jacks. <i>Note:</i> Consult local records to determine DID-ESS code for customer selected in Step 10.	
12	Momentarily operate ST key.	THC_, HC_, TC_, and UC_ lamps lighted to display number group address selected by 101 ESS control unit.
13	Momentarily operate RL key.	All lamps extinguished.
14f	If ESS pretranslator has any stations on intercept— Set up a number which has been changed in the No. 101 ESS PBX on the TH, H, T, and U switches.	
15f	Momentarily operate ST key.	CHG lamp lighted.
16f	Momentarily operate RL key.	All lamps extinguished.
17	Set up a number which is one of a blank hundreds block in the No. 101 ESS PBX on the TH, H, T, and U switches.	
18	Momentarily operate ST key.	BLK lamp lighted.
19	Momentarily operate RL key.	All lamps extinguished.
20	Set up a number which is one of a blank thousands block in the No. 101 ESS PBX on the TH, H, T, and U switches.	
21	Momentarily operate ST key.	BLK lamp lighted.
22	Momentarily operate RL key.	All lamps extinguished.
23g	If free terminating service is provided— Set up a working PBX extension number of a DID-ESS customer which has free terminating service.	
24g	Momentarily operate ST key.	FN lamp lighted.
25g	Momentarily operate RL key.	All lamps extinguished.
26	Repeat Step 10.	

STEP	ACTION	VERIFICATION
	Caution: Steps 27 through 30 must be performed as rapidly as possible to minimize service reaction.	
27	At OGTT frame— Make busy all line circuits to called switch unit of number set up in Step 10.	
28	At terminating trouble indicator— Momentarily operate ST key.	OF and PMO lamps lighted.
29	Momentarily operate RL key.	All lamps extinguished.
30	At OGTT frame— Release all line circuits made busy in Step 27.	
31	At terminating marker applique under test— Insulate 9M contact of CK relay.	
32	At terminating trouble indicator— Momentarily operate ST key.	PTM lamp lighted.
33	Momentarily operate RL key.	All lamps extinguished.
34	At terminating marker applique under test— Remove insulator from contacts of CK relay.	
35	At direct access pretranslator connector— Insert 349A plug into PMB jack.	PMB lamp lighted. Aisle pilot lamp lighted.
	Caution: Perform Steps 36 and 37 as rapidly as possible to minimize service reaction.	
36	At terminating trouble indicator— Momentarily operate ST key.	OF lamp lighted.
37	Momentarily operate RL key.	All lamps extinguished.
38	At direct access pretranslator connector— Remove plug from PMB jack.	PMB lamp extinguished. Aisle pilot lamp extinguished.
39	At terminating trouble indicator miscellaneous relay rack— Block operated ESS and CK relays.	
40	At terminating marker applique under test— Insulate 12B contacts of any DAP_ relay.	In 1 to 1.2 seconds— Terminating trouble indicator seized and ESS lamp lighted.
41	At terminating trouble indicator— Momentarily operate RL key.	ESS lamp extinguished.

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STEP	ACTION	VERIFICATION
42	At terminating marker applique— Remove insulator from DAP_ relay.	
43	At terminating trouble indicator miscellaneous relay rack— Remove blocking tools from ESS and CK relays.	
44	Request control unit personnel to ground TP6 of CP138 at equipment location 1D4 in bay CO (if call processor one is on-line) or bay FO (if call processor two is on-line.)	If service call enters call processor— At terminating trouble indicator— TLT lamp lighted.
45	At terminating trouble indicator— Momentarily operate ST key.	TLT lamp lighted.
46	Request control unit personnel to remove ground from TP6.	
47	Momentarily operate RL key.	All lamps extinguished.
48	Restore OAB key or remove plugs from NSS jacks as required to set up a POTS call.	
49	Set up a working number group address of any DID-ESS customer on the TH, H, T, and U switches.	
50	Momentarily operate ST key.	LIN lamp lighted.
51	Momentarily operate RL key.	All lamps extinguished.
52	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
53e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
AL. Blank, Plugged Up, and Changed Numbers—AIS Without LLP Provided		
10	Set up blank number on TH, H, T, and U keys or switches.	
11	Momentarily operate ST key.	IK, LIN, AIS, and A0 or B0 lamps lighted. At terminating sender test frame— CLC0 and TH_, H_, T_, and U_ lamps corresponding to blank number lighted.
12	Momentarily operate RL key.	All lamps extinguished.

STEP	ACTION	VERIFICATION
13	Set up a working individual number on TH, H, T, and U keys or switches.	
	<i>Note:</i> In this step, and in Step 18, select digits so that all ten are used in Steps 10, 13, and 18.	
14	Operate PU key.	
15	Momentarily operate ST key.	IK, LTI, AIS and A1 or B1 lamps lighted. At terminating sender test frame— CLC1 and TH_, H_, T_, and U_ lamps corresponding to plugged up number lighted.
16	Restore PU key.	
17	Momentarily operate RL key.	All lamps extinguished.
18	Set up a changed number on TH, H, T, and U keys or switches.	
19	Momentarily operate ST key.	IK, TIN, AIS and A3 or B3 lamp lighted. At terminating sender test frame— CLC3 and TH_, H_, T_, and U_ lamps corresponding to changed number lighted.
20	Momentarily operate RL key.	All lamps extinguished.
21d	If markers are arranged to serve two offices— Operate or restore OAB key as required to test numbers in both offices and repeat Steps 10 through 20.	
22f	If NSS jacks are provided— Set up DID code by inserting 329A make-busy plus into NSS jacks.	
	<i>Note:</i> Consult local records to determine NSS jacks associated with DID code.	
23f	Set up blank number in DID translator on TH, H, T, and U keys or switches.	
24f	Momentarily operate ST key.	IK, LIN, AIS and A0 or B0 lamp lighted. At terminating sender test frame— CLC0 and TH_, H_, T_, and U_ lamps corresponding to blank number lighted.
25f	Momentarily operate RL key.	All lamps extinguished.
26f	Set up changed number in DID translator on TH, H, T, and U keys or switches.	

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STEP	ACTION	VERIFICATION
27f	Momentarily operate ST key.	IK, LIN, AIS and A3 or B3 lamp lighted. At terminating sender test frame— CLC3 and TH_, H_, T_, and U_ lamps corresponding to changed number lighted.
28f	Momentarily operate RL key.	All lamps extinguished.
29f	If NSS jacks are provided— Remove 329A plugs from NSS jacks.	
30	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
31	◆If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.◆

AM. Calling Line Identification

Display at Terminating Trouble Indicator

10	Operate TH, H, T, and U keys (or set TH, H, T, and U switches, if provided) corresponding to number wired for calling line identification at block relay frame.	
11	Momentarily operate ST key.	CLI lamp lighted. Display includes called number, terminating marker group, office within marker group, incoming frame, primary switch number, trunk level, even or odd trunk.
12	Momentarily operate RL key.	All lamps extinguished.

Record at ANI Trouble Ticketer

13	Repeat Step 10.	
14	Momentarily operate ST key.	At ANI trouble ticketer— Information recorded on 35-line ticket as follows: (a) Type of record (b) Incoming frame tens (c) Incoming frame units (d) Primary switch (e) Called office unit (f) Called line directory number (g) Test call indication (h) Even or odd trunk (i) Trunk level (j) Terminating marker group (k) Time of day

STEP	ACTION	VERIFICATION
15	Momentarily operate RL key.	
16	Insert 347A plug into CTT_ jack associated with marker under test.	Associated TTB_ lamp lighted.
17	Momentarily operate ST key.	Same as Step 11.
18	Momentarily operate RL key.	All lamps extinguished.
19	Remove plug from CTT_ jack.	TTB_ lamp extinguished.
20	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
21e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦
AN. Misdirected Calls to Number Group Address of Line Circuits—LLP or Direct Access to No. 101 ESS Provided		
10	Set TH, H, T, and U switches corresponding to number group address of line circuit.	
	Note: Consult office records for required information.	
11	Operate MIT key.	
12	Momentarily operate ST key.	If ESS line circuit or if LLP line circuit cross-connected to TN0 is being tested— LIN lamp lighted. If LLP line circuit cross-connected to TN1 is being tested— DL4, CR4, and CR7 lamps lighted. Call completed to line circuit.
13	Momentarily operate RL key.	All lamps extinguished.
14	Restore all operated keys and switches to normal and remove plug from DB_ jack.	
15e	♦If office is equipped with automatic trouble analysis and a printout is not required— Remove 329A plug from CATA jack.	CATA lamp extinguished.♦

