LINE LINK AND CONTROLLER TESTS NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing the line link and controller in No. 1 crossbar offices.

1.02 This section is reissued to add Test AA, Terminating Call Preference During Periods of Originating Sender Overload, and to make minor changes and additions.

1.03 The tests covered are:

A. Check for False Continuities, False Grounds and Crosses on the AC, BC, HG_, D_, DA_, DB_, DF_, and DG_ Relays: The test checks for false continuities, false grounds and crosses on the springs of the AC, BC and HG_ relays and for false continuities on the DA_, DB_, DF_, and DG_ relays. The lockout of other frames served by the same group of district junctors is also checked.

B. Minor Time Alarm—Transfer to Mate Controller: This test checks that a call will be served by the home controller and that in the event of trouble in the home controller, a minor alarm will sound and the call will be served by the mate controller.

C. Minor Time Alarm—Transfer from Mate Controller: This test checks that in the event of trouble while the mate controller is serving a call, a minor alarm will sound and the call will be served by the home controller.

D. Minor Time Alarm—Grounded Start Lead (Partially Operated Line Relay): This test checks that a false ground on the start lead or a partially operated L relay will cause the minor alarm to sound.

E. Minor Time Alarm—Falsely Operated HG_ Relay: This test checks that a minor alarm will sound when an HG_ relay is falsely operated.

F. Minor Time Alarm when Circuit Is Arranged to Check for False Ground on the DK Lead: This test checks that a minor alarm will sound if the DK lead is falsely grounded.

G. Major Time Alarm with a Make-Busy Plug in the Hold Jack: This test checks that, when a call encounters trouble, a make-busy plug in the hold jack prevents the release of the circuit and causes a major alarm to sound.

H. Major Time Alarm with the Mate Controller Made Busy: This test checks that, when the mate controller is made busy at the MB jack a major alarm will sound when the home controller times out.

I. Major Time Alarm with the Home Controller Made Busy: This test checks that, when the home controller is made busy at the MB jack, a major alarm will sound when the mate controller times out.

J. Major Time Alarm with Both Controllers Made Busy: This test checks that when both home and mate controllers are made busy inadvertently, a major alarm sounds.

K. Minor Time Alarm with Blocked Terminating Call—Alternate Preference of Originating and Terminating Calls: This test checks that a blocked terminating call will cause the minor alarm to sound and that originating and terminating calls will be handled alternately.

L. Deleted.

M. Line Link Availability Test—Test from Link to Controller: This test checks for false grounds on the LL leads of all links on the frame under test to the controller. It also checks the operation of all primary select magnets and that make-busy plugs in the SS_ jacks make busy all links on the associated secondary switch.

N. Horizontal Group Test: This test checks that simultaneous calls will be served, one call per group, until all groups with waiting calls have been served in the sequence of group 0 to group 9. The release of the line link and controller by the delay register due to lack of facilities if also checked.

O. Vertical Column Selection: This test checks the preference of the vertical column to be served when simultaneous calls are waiting in more than one vertical column. It also checks the feature for reversing preference of calls to be served, when provided.

P. Line Selection: This test checks the preference of the line to be served when simultaneous calls are waiting in the same vertical column.

Q. Regular and Reserve District Junctor Selection: This test checks the selection of a district junctor subgroup containing two or more idle junctors, and also the reserve test feature for selecting a subgroup containing only one idle junctor.

R. District Group Selection: This test checks the chain circuit of the G_ relays for locking-in the selected district junctor subgroup.

S. Check of LA and LB Relay Operating Paths: This test checks that an originating call locks out a subsequent terminating call until the originating call is served.

T. Lockout of Originating Call by a Terminating Call: This test checks that originating calls are locked out while terminating calls are being served.

U. Alternate District Junctor Group Selection: This test checks that on consecutive calls the preference of district junctor groups will be alternated between two predetermined groups.

V. Early Release Feature: This test checks for release of the equipment if the subscriber disconnects before district group test.

W. Minor Alarm—False Ground on the LO Lead, When Provided for Observing Control of AMA: This test checks that a false ground on the LO lead from the line link frame to the sender link frame will cause the minor alarm to sound. It also checks the observing control feature.

X. Test of Line Identification Leads: This test checks that proper information is furnished by the line link frame for identification of vertical column, switch and vertical file when AMA equipment is provided.

Y. Exercise Home Controller: This test checks that the home start circuit will serve both the home and mate line link frames.

Z. Exercise Mate Controller: This test checks that the mate start circuit will serve both the home and mate line link frames.

AA. Terminating Call Preference During Periods of Originating Sender Overload: This test checks that the RL relay operates to provide terminating call preference.

1.04 Local instructions should be followed with reference to recording any register operations caused by performing these tests.

1.05 Unless otherwise specified in Part 3, there should be no make-busy plugs in the EA, EB, MB, or H jacks of the home and mate line link frames.

1.06 When the line link frame under test does not have an associated line link frame for mate operation, an emergency controller is provided on a miscellaneous bay. To test this emergency controller, it will be necessary to repeat Tests O,

P, Q, R, U, V, and X, inserting a make-busy plug into the EB jack of the associated line link frame, except in Tests O and P.

1.07 An assistant will facilitate making Test Q and also Tests O, P, R, U, V, and X when testing relays in the emergency controller where no mate frame is provided. ▶An assistant will also facilitate making Test AB. An assistant will also facilitate Test M when supplementary line link frames are not located in the vicinity of basic line link frames.◀ Where an assistant is used, a talking line should be established.

1.08 When making a test call in Part 3, only one reference is made to originate or disconnect the test call. However, to make all of the observations required, it may be desirable to disconnect and repeat the test call several times.

1.09 Tests should preferably be made during periods of light traffic and should be completed as quickly as possible to avoid interference with originating or terminating subscriber calls.

Caution: ***▶If it is noted at any time that a subscriber call is blocked by the equipment under test, the equipment should be restored to service until the call is served.◀***

1.10 When it is required to originate a call, except in Test X, select a spare subscriber line for the test. If no spare line is available, select an idle line as indicated by an unoperated hold magnet on the associated vertical. ▶In offices equipped with TOUCH-TONE and rotary dial senders, each horizontal group in the line link frame may be wired to provide either TOUCH-TONE and coin service improvement or rotary dial service. In Test AB, determine from local records which spare or idle line to use for test purposes.◀ Insert the handset into the vertical unit jack of the selected line. Operate the switch on the handset to the talk position.

1.11 When it is required to disconnect a call, except in Test X, operate the switch on the handset to the monitor position. At the completion of the tests, remove the handset from the vertical unit jack.

1.12 In performing the tests requiring the operation of relays, the relays should be operated manually unless otherwise specified.

1.13 ***Letter 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.

2. APPARATUS

2.01 The apparatus required for each test is shown in Table A. The details of each item are covered in the paragraph indicated by the number in parentheses.

2.02 351A plug with the tip and ring shorted (made up locally).

2.03 716C receiver attached to a W2AB cord equipped with two 360A tools (2W21A cord), one KS-6278 connecting clip and one 411A (test pick) tool.

2.04 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip and one 411A (test pick) tool.

2.05 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip and one 419A (test connector) tool.

2.06 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord), and two 419A (test connector) tools.

2.07 Patching cord, P3U cord, 7 feet long, equipped with one 310 plug and one 351A plug (3P27A cord).

2.08 Patching cord, P3E cord, 6 feet long, equipped with two 310 plugs (3P6D cord).

2.09 Incoming trunk circuit, line verification test, SD-25611-01.

2.10 ▶1014A handset (dial hand test set) equipped◀ with a W2CK cord, 5 feet long, one 310 plug and one 471 jack (2W38A cord).

2.11 ▶1014A◀ handset (dial hand test set) equipped with a W3AA cord, 5 feet long, one 351A plug, and one 471A jack (3W8A cord).

2.12 KS-3008 stopwatch or equivalent.

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

TABLE A

APPARATUS	TESTS																					
	A	B-C	D	E	F	G-H-I	J	K	L-M	N	O	P	Q	R	S	T	U	V	W	X	Y-Z	AA	AB
Plug (2.02)	—	—	—	—	—	—	—	—	—	10	—	—	—	—	—	—	—	—	—	—	—	—	—
Receiver (2.03)	1	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	1	—	—	—	—
Cord (2.04)	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cord (2.05)	1	—	—	—	—	—	—	2	—	—	7	10	—	1	—	—	—	—	2	—	—	—	—
Cord (2.06)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Cord (2.07)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
Cord (2.08)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
Test circuit (2.09)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
Test set (2.10)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
Test set (2.11)	—	1	1	—	—	1	—	2	1	—	—	—	1	—	—	1	1	1	—	—	—	1	1
32A Test set	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Stopwatch (2.12)	—	1	—	1	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Head telephone set	—	—	—	—	—	—	—	—	—	—	2	2	2	2	—	—	2	2	—	2	—	—	—
349A (make-busy) plug	√	√	√	—	—	√	√	—	√	√	√	√	√	√	—	—	—	√	—	—	√	√	—
Tool (2.13)	√	√	√	√	√	√	—	√	—	√	√	√	√	—	√	√	—	√	—	—	—	√	√

√ As required.

3. METHOD

STEP	ACTION	VERIFICATION

A. Check for False Continuities, False Grounds and Crosses on the AC, BC, HG_, D_, DA_, DB_, DF_, and DG_ Relays

Note: In the tables and text in this test, the terms "stationary spring" and "operating spring" refer to springs of nonwire-spring-type multicontact relays; "fixed contact" and "movable contact" refer to contacts of wire-spring-type multicontact relays.

Caution: When the link frame under test attempts to handle a service call, remove the test cord and receiver until the call is served.

AC and BC Relays

1	At home frame— Insert plug into MB jack.	
2	Apply ground or battery to springs or contacts of AC relay as indicated in Columns 1, 2, and 3 of Table 1.	No ground or battery on springs or contacts of AC relay as indicated in Columns 4, 5, 6, and 7 of Table 1.

TABLE 1

CHECK OF SPRINGS ON AC OR BC RELAY

USING A TESTING CORD, APPLY			USING A RECEIVER, CHECK FOR ABSENCE OF			
GROUND TO		BATTERY TO	GROUND ON		BATTERY ON	
Operating Spring or Fixed Contact	Stationary Spring or Movable Contact	Operating Spring or Fixed Contact	Operating Spring or Fixed Contact	Stationary Spring or Movable Contact	Operating Spring or Fixed Contact	Stationary Spring or Movable Contact
—	—	—	—	4, 6 to 19, 25 to 29	13	3, 9, 11, 50 to 59
4	—	—	14	4	—	—
20 to 24	—	—	10 to 14, respectively	20 to 24, respectively	—	—
—	2 to 4	—	—	12 to 14, respectively	—	—
—	5	—	5	15	—	—
—	10	—	10	0 and 20	—	—
—	11 to 14	—	11 to 14, respectively	21 to 24, respectively	—	—
—	15 to 19	—	—	25 to 29, respectively	—	—
—	30 to 39	—	30 to 39, respectively	40 to 49, respectively	—	—
—	—	30 to 39	—	—	40 to 49, respectively	—

STEP	ACTION	VERIFICATION
3	Remove plug from MB jack.	
4	At mate frame — Insert plug into MB jack.	
5	Repeat Step 2 for BC relay on frame under test.	
6	Remove plug from MB jack.	
HG0-9 Relays		
7	Apply ground or battery to springs or contacts of HG0 relay as indicated in Columns 1, 2, and 3 of Table 2.	No ground or battery on springs or contacts of HG0 relay as indicated in Columns 4, 5, and 6 of Table 2.

TABLE 2

CHECK OF SPRINGS ON THE HG0 RELAY

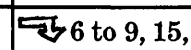
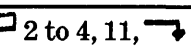
USING A TESTING CORD APPLY			USING A RECEIVER, CHECK FOR ABSENCE OF		
GROUND TO		BATTERY TO	GROUND ON		BATTERY ON
Operating Spring or Fixed Contact	Stationary Spring or Movable Contact	Operating Spring or Fixed Contact	Operating Spring or Fixed Contact	Stationary Spring or Movable Contact	Operating Spring or Fixed Contact
 —	 —	 —	 6 to 9, 15, 18, 19 to 24, and 30 to 34	 2 to 4, 11, and 30 to 34	 18
1	—	—	11	—	—
6	—	—	16	6	—
7 (See Note 1)	—	—	17 (See Note 1)	7 (See Note 1)	—
15	—	—	25	15	—
16	—	—	26	16	—
17 (See Note 1)	—	—	27	17 (See Note 1)	—
—	0	—	—	10	—
—	2 to 5	—	2 to 5, respectively	12 to 15, respectively	—
—	6	—	—	16 (See Note 2)	—
—	7 (See Note 1)	—	—	17 (See Notes 1 and 3)	—
—	8	—	—	18	—
—	9	—	—	19	—
—	10 to 14	—	10 to 14, respectively	20 to 24, respectively	—
—	25	—	25	15, 35 and 40 (See Note 4)	—
—	26	—	26	16, 36 and 41 (See Note 4)	—
—	27	—	27	17, 37 and 42 (See Notes 1 and 4)	—
—	28	—	28	18, 38 and 43 (See Note 4)	—

TABLE 2 (Cont'd)

USING A TESTING CORD, APPLY			USING A RECEIVER, CHECK FOR ABSENCE OF		
GROUND TO		BATTERY TO	GROUND ON		BATTERY ON
Operating Spring or Fixed Contact	Stationary Spring or Movable Contact	Operating Spring or Fixed Contact	Operating Spring or Fixed Contact	Stationary Spring or Movable Contact	Operating Spring or Fixed Contact
—	29	—	29	19, 39 and 44 (See Note 4)	—
—	30 to 34	—	—	20 to 24, respectively, and 40 to 44, respectively	—
—	35 to 39	—	35 to 39, respectively	45 to 49, respectively	—
—	50 to 59	—	50 to 59, respectively	—	—
—	—	2 to 5	—	—	12 to 15, respectively
—	—	10	—	—	0
—	—	18	—	—	8 and 28
—	—	19	—	—	9 and 29
—	—	10 to 14	—	—	20 to 24, respectively
—	—	20 to 24	—	—	30 to 34, respectively
—	—	30 to 34	—	—	40 to 44, respectively
—	—	35 to 39	—	—	25 to 29, respectively, and 45 to 49, respectively

Note 1: Omit the check of springs or contacts 7, 17, and 37 where noted, when CC wiring is provided for AMA operation.

Note 2: Insulate the 1B spring of the HO relay while checking this spring and remove the insulator as quickly as possible.

Note 3: Insulate the 3B spring of the HO relay while checking this spring and remove the insulator as quickly as possible.

Note 4: Ground observed on stationary springs or movable contacts 35 to 39 may be due to a subscriber call on the associated links. Repeat the test when it is known that the associated links are idle.

STEP	ACTION	VERIFICATION
8	Apply ground through receiver to operating springs or fixed contacts 19 to 24 and 30 to 34 on HG1-9 relays.	No click heard in receiver.

STEP	ACTION	VERIFICATION
	Note: Prior to applying ground to operating spring or fixed contact 19 of HG1-9 relays, it will be necessary to remove battery from the associated traffic register circuit by restoring the LK key (or removing the patch cord) at the traffic register cabinet.	
9	Apply ground to springs or contacts of HG1-9 relays as indicated in Columns 1 and 2 of Table 3.	No ground on springs or contacts of HG1-9 relays as indicated in Columns 3 and 4 of Table 3.

TABLE 3
CHECK OF SPRINGS ON THE HG1-9 RELAYS

USING A TESTING CORD, APPLY		USING A RECEIVER, CHECK FOR ABSENCE OF	
GROUND TO		GROUND ON	
Operating Spring or Fixed Contact	Stationary Spring or Movable Contact	Operating Spring or Fixed Contact	Stationary Spring or Movable Contact
—	—	—	2 to 4, 11, and 30 to 34
15	—	—	15
16	—	—	16
17 (See Note 1)	—	—	17 (See Note 1)
—	0	—	10
—	2 to 5	2 to 5, respectively	12 to 15, respectively
—	6	6	16 (See Note 2)
—	7	7	17 (See Notes 1 and 3)
—	8	—	18
—	9	—	19
—	10 to 14	10 to 14, respectively	20 to 24, respectively
—	25	25	15 and 35 (See Note 4)
—	26	26	16 and 36 (See Note 4)
—	27	27	17 and 37 (See Notes 1 and 4)
—	28	28	18 and 38 (See Note 4)
—	29	29	19 and 39 (See Note 4)
—	30 to 34	—	20 to 24, respectively, and 40 to 44, respectively
—	35 to 39	35 to 39, respectively	45 to 49, respectively
—	50 to 59	50 to 59, respectively	40 to 49, respectively

Note 1: Omit the check of spring or contact 17 where noted, when CC wiring is provided for AMA operation.

Note 2: Insulate spring 1B of the H- relay associated with the HG- relay under test while checking this spring and remove the insulator as quickly as possible.

Note 3: Insulate spring 3B of the H- relay associated with the HG- relay under test while checking this spring and remove the insulator as quickly as possible.

Note 4: Ground observed on stationary springs or movable contacts 35 to 39 may be due to a subscriber call on the associated links. Repeat the test when it is known that the associated links are idle.

STEP	ACTION	VERIFICATION
	D-, DA-, DB-, DF-, and DG- Relays	
10	At sender link frame — Insert plug into MB jack of one of district junctor groups associated with line link frame under test.	
→ 11a	At line link frame — If D- relay is U73 type — Connect ground to 2B spring of D- relay associated with district junctors made busy.	
12a	Operate D- relay.	No ground on 3T and 3B springs of D- relay.
13b	If D- relay is U1288 type — Connect ground to 8T spring of D- relay associated with district junctors made busy.	
14b	Operate D- relay.	No ground on 3B and 9T springs of D- relay.
15	Release D- relay.	
16	Remove ground connection from D- relay.	
→ 17	Apply ground to stationary springs of DA-, DB-, DF, and 263-type DG- relays associated with district junctors made busy. Where 287-type DG- relays are furnished, apply ground to movable contacts. *Note:* Omit test of the following: 9B and 10B of DA- or DB- relays, 3B and 4B of DF- relay, and 0 to 9 of DG- relay.	No ground on associated operating springs or, with 287-type DG- relay, on associated fixed contact. *Note:* Ground on operating springs of DA- or DB- relays may be due to associated junctor being busy. Repeat test when junctor is idle.
18c	If controller trouble indicator frame is provided — Connect ground to 1B spring of DF- relay.	
19c	Block operated DF- relay.	
20c	At controller trouble indicator frame — Operate LP key. Operate C relay.	C relay locks. LLT- and LLU- lamps lighted identify line link frame under test.
21c	Restore LP key.	
22c	Momentarily operate RL key.	

STEP	ACTION	VERIFICATION
23c	At line link frame — Remove ground connection and blocking tool from DF- relay.	
24	Remove plug from MB jack of district junctor group made busy for test.	
25	Repeat Steps 10 through 24 for each district junctor group associated with line link frame under test.	
	B. Minor Time Alarm — Transfer to Mate Controller	
1	Block nonoperated FA relay.	
2	Originate call.	6 to 13 seconds later — Minor alarm sounds. White aisle pilot lamp lights. At line link and sender make-busy frames — AL lamps light. After minor alarm sounds — At line link frame — CB relay operates. Dial tone heard.
3	Remove blocking tool from FA relay.	
4	Momentarily operate TR key.	Minor alarm silenced. AL lamps extinguished.
5	Disconnect call.	
6	At mate frame — Insert plug into MB jack.	
7	At home frame — Block nonoperated M relay.	
8	Operate TA2 relay.	TA2 relay does not lock.
9	Block operated TA1 relay.	
10	Operate TA2 relay. *Note:* TA2 relay may operate from interrupter.	TA2 relay locks.
11	Remove blocking tool from TA1 relay.	TA2 relay releases.
12	Remove plug from MB jack.	

STEP	ACTION	VERIFICATION
13	Operate TA2 relay.	TA2 relay locks.
14	Momentarily operate TB1 relay.	TA2 relay releases.
15	Remove blocking tool from M relay.	
16	Operate TA2 relay.	TA2 relay locks.
17	Operate TB2 relay.	TB2 relay locks. TA2 relay releases.
18	Momentarily operate TR key.	TB2 relay releases.
19	At mate frame — Insulate 2B contact of FA relay.	
20	At home frame — Block nonoperated CA relay.	
21	Originate call.	Dial tone not heard.
22	Disconnect call.	
23	Remove blocking tool from CA relay.	
24	Operate TA2 relay.	TA2 relay locks.
25	Originate call.	CB relay operates.
26	Disconnect call.	
27	At mate frame — Remove insulator from FA relay.	
28	Momentarily operate TR key.	TA2 relay releases.
29	At home frame — Insert plug into EA jack. Block nonoperated CA relay. Originate call.	Dial tone not heard.
30	Disconnect call.	
31	Remove blocking tool from CA relay.	
32	Operate TA2 relay.	TA2 relay locks.
33	Originate call.	CB relay operates and releases.
34	Disconnect call.	

STEP	ACTION	VERIFICATION
35	Momentarily operate TR key.	TA2 relay releases.
Resetting of Time Alarm Relay TA		
36	Block operated LA relay.	
37	After TA relay operates and before TA1 relay operates — Operate FA relay.	TA relay releases.
38	Release FA relay and remove blocking tool from LA relay.	
39	Block nonoperated TA1 relay and block operated TA relay.	
40	Originate call.	FA relay operates.
41	Remove blocking tool from TA relay.	FA relay releases.
42	Disconnect call.	
43	Remove blocking tool from TA1 relay.	
	C. Minor Time Alarm — Transfer from Mate Controller	
1	Block nonoperated FB relay.	
2	Operate TA2 relay.	TA2 relay locks. Minor alarm sounds.
3	Originate call.	6 to 13 seconds later — CA relay operates. Dial tone heard.
4	Remove blocking tool from FB relay.	
5	Momentarily operate TR key.	Minor alarm silenced.
6	Disconnect call.	
7	At home frame — Insert plug into MB jack.	
8	Block operated M relay.	
9	Momentarily operate TB2 relay.	TB2 relay does not lock.
10	Block operated TB1 relay.	
11	Operate TB2 relay.	TB2 relay locks.

STEP	ACTION	VERIFICATION
	Note: TB2 relay may operate from interrupter.	
12	Remove blocking tool from TB1 relay.	TB2 relay releases.
13	Remove plug from MB jack.	
14	Operate TB2 relay.	TB2 relay locks.
15	Momentarily operate TA1 relay.	TB2 relay releases.
16	Remove blocking tool from M relay.	
17	Operate TB2 relay.	TB2 relay locks.
18	Operate TA2 relay.	TB2 relay releases. TA2 relay locks.
19	Momentarily operate TR key.	TA2 relay releases.
20	At mate frame — Insulate 2B contact of FB relay.	
21	Originate call.	CB relay operates.
22	Disconnect call.	
23	Operate TB2 relay.	TB2 relay locks.
24	Originate call.	CA relay operates.
25	Disconnect call.	
26	Remove insulator from FB relay.	
27	Momentarily operate TR key.	TB2 relay releases.
28	At home frame — Insert plug into EB jack.	
29	Originate call.	CB relay operates.
30	Disconnect call.	
31	Operate TB2 relay.	TB2 relay locks.
32	Originate call.	CA relay operates.
33	Disconnect call.	
34	Remove plug from EB jack.	

STEP	ACTION	VERIFICATION
35	Momentarily operate TR key.	TB2 relay releases.
	Resetting of Time Alarm Relay TB	
36	Block operated LB relay.	
37	After TB relay operates and before TB1 relay operates — Operate FB relay.	TB relay releases.
38	Remove blocking tool from LB relay.	
39	At home frame — Insert plug into EB jack.	
40	Block nonoperated TB1 relay and block operated TB relay.	
41	Originate call.	FB relay operates.
42	Remove blocking tool from TB relay.	FB relay releases.
43	Disconnect call.	
44	Remove blocking tool from TB1 relay.	
45	Remove plug from EB jack.	

D. Minor Time Alarm — Grounded Start Lead (Partially Operated Line Relay)

STEP	ACTION	VERIFICATION
→ 1	On spare subscriber's line circuit — Insulate contact 1 of associated L relay.	
2	At home frame — Insert plug into EA jack.	
3a	If AE wiring is provided (wires on 3-4B of AP relay) — Originate call on line selected for test.	AP relay operates and locks. AL and white aisle pilot lamps light. Minor alarm sounds.
4b	If AE wiring is not provided (no wires on 3-4B of AP relay) — Originate call on line selected for test.	AP relay operates and releases repeatedly. AL and white aisle pilot lamps flash in sequence with AP relay. Minor alarm sounds in sequence with AP relay.
5a	Disconnect call.	

STEP	ACTION	VERIFICATION
6a	Momentarily operate TR key.	AP relay releases. AL and white aisle pilot lamps extinguished. Minor alarm silenced.
7b	Disconnect call.	AP relay releases. AL and white aisle pilot lamps extinguished. Minor alarm silenced.
8	At home frame — Remove plug from EA jack and insert in EB jack.	
9	Repeat Steps 3a through 7b.	
10	Remove insulator from L relay.	
11	Remove plug from EB jack.	

E. Minor Time Alarm — Falsely Operated HG- Relay

1	Block operated bottom half of an HG- relay.	CA relay operates. 6 to 13 seconds later — Minor alarm sounds.
2	Release HG- relay.	CA relay releases.
3	Momentarily operate TR key.	Minor alarm silenced.
4	Block nonoperated TA relay.	
5	Operate bottom half of next higher HG- relay.	CA relay operates.
6	Release HG- relay.	CA relay releases.
7	Repeat Steps 5 and 6 for remaining HG- relays.	
8	Remove blocking tool from TA relay.	

F. Minor Time Alarm when Circuit Is Arranged to Check for False Ground on the DK Lead

1	When controller is idle — Block nonoperated CA and CB relays. ***Caution: Complete this test as quickly as possible since all originating and terminating traffic on the frame under test is blocked.***	

STEP	ACTION	VERIFICATION
2	Insulate 4T contact of FA and FB relays.	
3	Ground 2T spring of TRL relay.	6 to 13 seconds later — Minor alarm sounds. AL lamp lights.
4	Remove ground from TRL relay.	
5	Remove blocking tools from CA and CB relays and insulators from FA and FB relays.	
6	Momentarily operate TR key.	Minor alarm silenced.
	G. Major Time Alarm with a Make-Busy Plug in the Hold Jack	
1	Insert plug into H jack.	
2	Block nonoperated FA relay.	
3	Originate call.	Dial tone not heard. 6 to 13 seconds later — Major alarm sounds. White aisle pilot and MA lamps light.
4	Disconnect call.	
5	Remove blocking tool from FA relay.	
6	Remove plug from H jack.	
7	Momentarily operate TR key.	Major alarm silenced.
8	Insert plugs into EB and H jacks.	
9	Block nonoperated FB relay.	
10	Repeat Step 3.	
11	Disconnect call.	
12	Remove blocking tool from FB relay.	
13	Remove plugs from EB and H jacks.	
14	Momentarily operate TR key.	Major alarm silenced.

STEP	ACTION	VERIFICATION
	H. Major Time Alarm with the Mate Controller Made Busy	
	Caution: Complete this test as quickly as possible since all originating traffic on the frame under test is blocked.	
1	At mate frame — Insert plug into MB jack.	
2	At home frame — Insert plug into EB jack.	
3	Block nonoperated FA and TB relays and block operated CB relay.	
4	Originate call.	6 to 13 seconds later — Major alarm sounds. White aisle pilot and MA lamps light.
5	Remove blocking tool from FA relay.	
6	Momentarily operate TR key.	Major alarm silenced. White aisle pilot and MA lamps extinguished. Dial tone heard.
7	Disconnect call.	
8	Remove blocking tools from CB and TB relays.	
9	Remove plugs from EB and MB jacks.	
	I. Major Time Alarm with the Home Controller Made Busy	
1	Insert plugs into EA and MB jacks.	
2	Block nonoperated FB and TA relays and block operated CA relay.	
3	Originate call.	6 to 13 seconds later — Major alarm sounds. White aisle pilot and MA lamps light.
4	Remove blocking tool from FB relay.	
5	Momentarily operate TR key.	Major alarm silenced. White aisle pilot and MA lamps extinguished. Dial tone heard.
6	Disconnect call.	

STEP	ACTION	VERIFICATION
7	Remove blocking tools from CA and TA relays.	
8	Remove plugs from EA and MB jacks.	

J. Major Time Alarm with Both Controllers Made Busy

1	At mate frame — Insert plug into MB jack.	
2	At home frame — Insert plug into MB jack.	Major alarm sounds. At home and mate frames — MA lamps light. Associated white aisle pilot lamps light.
3	Remove plugs from MB jacks.	
4	At mate frame — Momentarily operate TR key.	MA lamp extinguished. Associated white aisle pilot lamp extinguished unless in same aisle as home frame.
5	At home frame — Momentarily operate TR key.	Major alarm silenced. MA and white aisle pilot lamps extinguished.
6	At home frame — Insert plug into MB jack.	LL guard lamp lights at floor alarm cabinet.
7	Remove plug from MB jack.	

K. Minor Time Alarm with Blocked Terminating Call — Alternate Preference of Originating and Terminating Calls

Caution: Complete this test as quickly as possible since originating and terminating traffic on the frame under test is blocked for a portion of the test.

1	Insulate 6T of CA relay and 8T and 12T of FA relay.	
2	Originate call in each of two horizontal groups.	
3	Ground 1B spring of CA and CB relays.	
4	Remove insulator from CA relay.	

STEP	ACTION	VERIFICATION
5	Remove insulators from FA relay simultaneously.	Dial tone heard on one call. CA relay holds operated. 6 to 13 seconds later— Minor alarm sounds. ***Note:*** A major alarm will also be obtained if the IA and IB interrupter closures overlap to permit the TA1 and TB1 relays to be operated at the same time.
6	Disconnect call on which dial tone was heard.	
7	Remove ground from CA and CB relays in that order.	Dial tone heard on second call.
8	Disconnect call.	
9	Operate TA1 and TB1 relays.	Major alarm sounds.
10	Release TA1 and TB1 relays.	
11	Momentarily operate TR key.	Major alarm silenced.

L. ▶Deleted◀

STEP	ACTION	VERIFICATION
M.	**Line Link Availability Test—Test from Link to Controller**	
	Caution: Complete Steps 1 through 4 as quickly as possible since all originating and terminating traffic on the frame under test is blocked.	
1	Insert plugs into SS0 to SS9 jacks.	
2	Originate call.	Dial tone not heard.
3	Disconnect call.	
4	Remove plug from SS0 jack.	
5	Originate call in highest numbered column of horizontal group 0.	All primary select magnets associated with idle link operate. Dial tone heard. ***Note:*** If dial tone is not heard, it may be due to a subscriber call seizing link. In this case repeat test when link is idle.
6	Disconnect call.	
7	Repeat Steps 5 and 6 using horizontal groups 1 to 9 in turn.	
8	Insert plug into SS0 jack.	
9	Repeat Steps 4 through 8 removing plug from SS1 to SS9 jacks in turn.	
10	Remove plugs from all SS_ jacks.	
N.	**Horizontal Group Test**	
	Caution: Complete this test as quickly as possible since all originating traffic on the frame under test is blocked.	
1	Insert plugs into SS0 to SS7 jacks.	
2	Block operated GTA relay and block nonoperated G8, G9, and CB relays.	
3	Insert 351A plug into vertical unit jack of spare or idle line in each horizontal group.	HA0-9 relays normal. HB0-9 relays operated.

STEP	ACTION	VERIFICATION
4	Remove blocking tool from GTA relay.	HG- relays operate and release in turn from HG0 to HG9. GTA relay releases momentarily. HG- relays again operate and release in turn from HG0 to HG9. No alarms sound.
5	Remove plugs from vertical unit jacks.	
6	Remove blocking tools from G8, G9, and CB relays.	
7	At mate frame — Insert plug into EB jack.	
8	Block nonoperated G8 and G9 relays.	
9	At home frame — Block operated GTB relay and block nonoperated CA relay.	
10	Insert 351A plug into vertical unit jack of spare or idle line in each horizontal group.	HB0-9 relays normal. HA0-9 relays operate.
11	Remove blocking tool from GTB relay.	HG- relays operate and release in turn from HG0 to HG9. GTB relay releases momentarily. HG- relays again operate and release in turn from HG0 to HG9. No alarms sound.
12	Remove plugs from vertical unit jacks and SS0 to SS7 jacks.	
13	Remove blocking tool from CA relay.	
14	At mate frame — Remove blocking tools from G8 and G9 relays.	
15	Remove plug from EB jack.	
	O. Vertical Column Selection	
1	Insert plug into MB jack.	
2a	If VP relay is provided — If VP relay is operated — Momentarily operate RL relay.	VP relay releases.
3	Block operated VE relay.	

STEP	ACTION	VERIFICATION
4a	Connect ground to 10T spring of each V- relay.	V- relays do not operate.
5b	If VP relay is not provided — Connect ground to 7T spring of each V- relay.	V- relays do not operate.
6	Remove blocking tool from VE relay.	All V- relays operate.
7	Block operated VS relay.	All V- relays remain locked.
8	Block operated S, TT, and VE relays and block nonoperated LS relay.	Ground present on 1B spring and not present on 1T spring of HC1 relay.
9	Remove ground from VO relay.	Ground present on 1T spring and not present on 1B and 3T springs of HC1 relay.
10	Remove grounds in turn from remaining V- relays as shown in Column 1 of Table 4.	Ground present or not present on springs of HC1 relay as indicated in Table 4. When all V- relays are normal — RL relay operates. PR relay releases.
11	Remove blocking tools from S, TT, and VE relays.	RL relay holds operated.
12	Remove blocking tool from VS relay.	RL and LP relays release. VP relay operates.
13a	Connect ground to 10T spring of each V- relay.	

TABLE 4

Remove the Testing Cord from Relay	USING A RECEIVER, CHECK FOR	
	Presence of Ground on HC1 Relay Springs	Absence of Ground on HC1 Relay Springs
V0	1T	1B and 3T
V1	*3T	1T and 5T
V2	*5T	3T and 7T
V3	*7T	5T and 9T
V4	*9T	7T and 11T
V5	*11T	9T
V6	—	11T
* When less than seven V- relays are provided, omit the check for presence of ground on the highest numbered V- relay equipped.		

STEP	ACTION	VERIFICATION
14a	Block operated S, TT, VE, and VS relays.	Ground present on 11T spring and not present on 9T spring of HC1 relay.
15a	Remove ground from V6 relay.	Ground present on 9T spring and not present on 11T and 7T springs of HC1 relay.
16a	Remove grounds in turn from remaining V- relays as shown in Column 1 of Table 5.	Ground present or not present on springs of HC1 relay as indicated in Table 5. When all V- relays are normal — RL relay operates. PR relay operates.

TABLE 5

Remove the Testing Cord from Relay	USING A RECEIVER, CHECK FOR	
	Presence of Ground on HC1 Relay Springs	Absence of Ground on HC1 Relay Springs
V6	9T	11T and 7T
V5	7T	9T and 5T
V4	5T	7T and 3T
V3	3T	5T and 1T
V2	1T	3T and 1B
V1	1B	1T
V0	—	1B

17a	Remove blocking tools from S, TT, and VE relays.	
18a	Remove blocking tool from VS relay.	LP relay operates. RL and VP relays release.
19	Remove blocking tool from LS relay.	
20	Remove plug from MB jack.	

P. Line Selection

1	Insert plug into MB jack.	
2a	If LP relay is provided — If LP relay is operated — Momentarily operate RL relay.	LP relay releases.
3	Insulate 1T contact of SR relay.	
4	Block operated LE, VE, and VO relays and block nonoperated RE relay.	

STEP	ACTION	VERIFICATION
5a	Connect ground to 7B spring of each LT- relay.	LT- relays do not operate.
6b	If LP relay is not provided — Connect ground to 1B spring of each LT- relay.	LT- relays do not operate.
7	Remove blocking tools from RE and LE relays in that order.	LT0 relay operates and holds. LT1 to LT9 relays operate and release.
8	Remove ground from LT0 relay.	RE relay releases.
9	Remove insulator from SR relay.	
10	Insulate 7T contact of RE relay.	
11	Momentarily remove blocking tool from VO relay.	LT0 relay releases. LT1 to LT9 relays operate.
12	Remove insulator from RE relay.	LT1 relay holds operated. All higher numbered LT- relays release.
13	In similar manner, repeat Steps 8, 10, 11, and 12, removing grounds from LT1 to LT8 relays in turn.	Associated LT- relay releases and next higher LT- relay remains operated.
14	Remove ground from LT9 relay.	
15	Remove blocking tools from VE and VO relays.	
16a	Momentarily operate RL relay.	LP relay operates.
17a	Block operated LE relay and block non-operated RE relay.	
18a	Connect ground to 7B spring of each LT- relay.	No LT- relay operates.
19a	Remove blocking tool from LE relay.	Only LT9 relay operates.
20a	Remove ground from LT9 relay.	LT9 relay releases. Only LT8 relay operates.
21a	Remove grounds from LT8 to LT1 relays in turn.	Associated LT- relay releases and only next lower LT- relay operates.
22a	Remove ground from LT0 relay.	
23a	Remove blocking tool from RE relay.	

STEP	ACTION	VERIFICATION
	Q. Regular and Reserve District Junctor Selection	
1	At district junctor frame — Insert plugs into all district junctor MB jacks associated with one subgroup of 10 junctors available to line link frame under test. Insert plugs into all but two MB jacks of district junctors associated with second subgroup in same group of 20 junctors. ***Caution: If a service call attempts to be served during the progress of this test when all junctors are made busy, as indicated by the seizure of the line link start relays, remove the plug from the MB jack of one district junctor group to serve waiting calls.***	
2	At sender link frame — Operate CA relay associated with subgroup of 10 junctors made busy in Step 1.	CA relay locks.
3	At sender link frames — Insert plugs into MB jacks associated with remaining district junctor groups available to line link frame under test.	
4	Block nonoperated TA1 relay. Insulate 10T contact of HC2 relay.	
5a	If emergency controller is provided — When emergency controller is being tested — Block nonoperated TB1 relay. Insulate 10T contact of MC2 relay.	
6	Originate call.	G- relay, associated with subgroup having two idle junctors, operates. RS and RSA relays do not operate. Dial tone heard. ***Note:*** If results specified in Steps 6 through 20 are not obtained, it may be due to a subscriber call making the idle junctor or junctors busy. In this case change the plugs at the MB jacks to make available one or two junctors as required and repeat the test.

STEP	ACTION	VERIFICATION
7	While call is established — Insert plug into MB jack of one of two idle junctors.	
8	Block nonoperated RS and RSA relays.	
9	Disconnect call.	
10	Originate another call.	No G- relay operates.
11	Remove blocking tool from RS and RSA relays.	G- relay, associated with subgroup having idle junctor, operates. Dial tone heard.
12	While call is established — Insert plug into MB jack of last idle junctor.	
13	Disconnect call.	
14	Originate another call.	No G- relay operates. RS and RSA relays do not operate.
15	Block nonoperated RS and RSA relays.	
16	Remove plug from one MB jack of the other subgroup.	No G- relay operates.
17	Remove blocking tools from RS and RSA relays.	G- relay, associated with subgroup having idle junctor, operates. Dial tone heard.
18	Disconnect call.	
19	Remove plug from second MB jack in subgroup being used for test.	
20	Originate call.	G- relay, associated with subgroup having two idle junctors, operates. RS and RSA relays do not operate. Dial tone heard.
21	Disconnect call.	
22	At district junctor frame — Remove plugs from all MB jacks.	
23	At sender link frame — Remove plug from MB jack of next junctor group to be tested and insert into MB jack of junctor group last tested.	

STEP	ACTION	VERIFICATION
24	Repeat Steps 1 through 23 for each junctor group associated with line link frame under test.	
25	At sender link frame — Remove plugs from MB jacks of junctor groups associated with line link frame under test.	
26	Remove blocking tool from TA1 relay and insulator from HC2 relay.	
27a	Remove blocking tool from TB1 relay and insulator from MC2 relay.	

R. District Group Selection

1	Insert plug into MB jack.	
2	Connect ground to 2B spring of G0 relay.	
3	Operate G9 relay.	G9 relay locks.
4	Operate next lower numbered G- relay.	Last operated G- relay locks. Next higher numbered G- relay releases.
5	Repeat Step 4 for remaining G- relays from G7 to G0.	
6	Remove ground from G0 relay.	
7	Remove plug from MB jack.	

S. Check of LA and LB Relay Operating Paths

Caution: Complete this test as quickly as possible. If it is noted that an originating or terminating call is blocked, restore the equipment to service to permit the call to be served.

1	Block nonoperated TA1 and TB1 relays.	
2	Using receiver, connect ground to 3B spring of FB relay.	LA relay operates.
3	Operate FA relay.	LA relay remains operated.

STEP	ACTION	VERIFICATION
4	Remove ground from FB relay.	LA relay releases.
5	Reapply ground to 3B spring of FB relay.	LA relay does not operate.
6	Remove ground from FB relay and release FA relay.	
7	Block operated FB and CB relays.	
8	Reapply ground to 3B spring of FB relay.	LA relay does not operate.
9	Remove blocking tool from CB relay.	LA relay operates.
10	Remove ground and blocking tool from FB relay.	LA relay releases.
11	Block operated CB relay and block nonoperated FB relay.	
12	Reapply ground to 3B spring of FB relay.	LA relay operates.
13	Remove ground from FB relay and blocking tools from CB and FB relays.	
14	Using receiver, connect ground to 5B spring of FA relay.	LB relay operates.
15	Operate FB relay.	LB relay remains operated.
16	Remove ground from FA relay.	LB relay releases.
17	Reapply ground to 5B spring of FA relay.	LB relay does not operate.
18	Remove ground from FA relay and release FB relay.	
19	Block operated FA and CA relays.	
20	Reapply ground to 5B spring of FA relay.	LB relay does not operate.
21	Remove blocking tool from CA relay.	LB relay operates.
22	Remove ground and blocking tool from FA relay.	LB relay releases.
23	Block operated CA relay and block nonoperated FA relay.	
24	Reapply ground to 5B spring of FA relay.	LB relay operates.

STEP	ACTION	VERIFICATION
25	Remove ground from FA relay and blocking tools from CA, FA, TA1, and TB1 relays.	

T. Lockout of Originating Call by a Terminating Call

Caution: Complete this test as quickly as possible since originating traffic on the frame under test is blocked.

1	Block nonoperated TA and TB relays. Block operated LA relay.	
2	Originate call.	Dial tone not heard.
3	Remove blocking tool from LA relay.	Dial tone heard. ***Note:*** If results specified are not obtained, it may be due to interference of a subscriber call. In this case repeat test.
4	Disconnect call.	
5	Block operated LB relay.	
6	Originate call.	Dial tone not heard.
7	Remove blocking tool from LB relay.	Dial tone heard.
8	Disconnect call.	
9	Remove blocking tools from TA and TB relays.	

U. Alternate District Junctor Group Selection

1	Originate call.	Note which primary selecting magnet operates.
2	Disconnect call.	
3	Originate call from same line used in Step 1.	Alternate district group selected as indicated by operation of associated primary selecting magnet. ***Note:*** If results specified are not obtained, it may be due to interference of a subscriber call. In this case repeat test.
4	Disconnect call.	

STEP	ACTION	VERIFICATION
	V. Early Release Feature	
	Caution: Complete this test as quickly as possible since all originating traffic on the frame under test is blocked.	
1	Insert plugs into SS0 to SS7 jacks.	
2	Block nonoperated G8, G9, and LS relays.	
3	Originate call and, after approximately one second, disconnect call.	Controller circuit restores to normal immediately.
4	Remove blocking tool from LS relay.	
5	Originate call and disconnect after LE relay operates.	Controller circuit restores to normal immediately.
6	Remove plugs from SS0 to SS7 jacks.	
7	Remove blocking tools from G8 and G9 relays.	
	W. Minor Alarm — False Ground on the LO Lead When Provided for Observing Control on AMA	
1	At sender link frames — Insert plugs into MB jacks of district junctors available to line link frame to be tested.	
→ 2	Connect ground to 4T winding terminal and 1T spring of OC relay.	Alarm does not sound. At district group connector — Ground present on operating spring 1 or 6 (263-type relay), or on fixed contact 1 or 6 (287-type relay), of each DG- relay associated with line link frame under test. Ground not present on stationary spring (263-type), or on movable contact (287-type), 1 or 6 of each DG- relay.
3	Remove ground connections from OC relay.	
4	Momentarily ground 2T spring of OC relay.	TL and white aisle pilot lamps light. Minor alarm sounds.
5	Momentarily operate AR key.	TL and white aisle pilot lamps extinguished. Minor alarm silenced.
6	Remove plugs from MB jacks.	

STEP	ACTION	VERIFICATION
	X. Test of Line Identification Leads	
1	At MDF — Cross-connect T, R, and S terminals of B jack on line link frame to be tested to corresponding terminals of B jack on miscellaneous frame containing verification trunk serving line link frame to be tested.	
2	At miscellaneous frame — Patch B jack to VC jack of selected verification trunk.	
3a	If A and B offices are provided — Operate AO or BO key depending upon office in which test is being made.	
4b	If subscriber's line selected for test is not arranged for AMA — Operate NAL key.	
5	Insert 310 plug of 3P27A cord into T jack and 351A plug into vertical unit jack of any idle line.	
6	Insert plugs into 8 SS jacks associated with four district junctor groups.	
7	At line link frame — Insert plug of handset into B jack.	
8	Operate switch on handset to talk position.	
9	When dial tone is heard — Dial special code assigned to selected verification trunk and then busy test line number.	
10	When busy tone is heard — Remove plug from vertical unit jack. *Note:* Record in sequence the line equipment location of each call made in this test. The no-test connector on vertical file 0, Column 0 must not be used for a test call.	
11	Insert 351A plug of 3P27A cord into another vertical unit in a different column, a different horizontal group, and a different vertical file number.	

STEP	ACTION	VERIFICATION
12	Repeat Steps 9, 10, and 11 until one test call is made from each column, each horizontal group, and vertical files 0 through 9.	
13	Remove plugs from 2 SS jacks associated with a district junctor group that has not been tested and insert into SS jacks of district junctor group last tested.	
14	Make successive calls from one idle subscriber's line in each column using horizontal groups 0, 1, and 2 and vertical files 0, 1, and 2 for first three calls.	
15	Repeat Steps 13 and 14 for remaining district junctor groups of line link frame under test.	
16	Remove plugs from SS jacks.	
17	At printer table of maintenance recorder — Momentarily operate P key.	Printed record obtained of each test call in proper sequence showing entry index, called number and line equipment number.
18	At line link frame — Remove handset and patching cord.	
19	At miscellaneous frame — Remove patching cord.	

Y. Exercise Home Controller

1	Insert plug into EA jack of each line link frame. ***Caution: To guard against dial tone delays this test should be closely supervised and made only during relatively light loads.***	Calls are served by "A" side of start circuit (home controller).
2	After home controller has been exercised — Remove plugs from EA jacks.	

Z. Exercise Mate Controller

1	Insert plugs into EB jacks of each line link frame. ***Caution: To guard against dial tone delays this test should be closely supervised and made only during relatively light loads.***	Calls are served by "B" side of start circuit (mate controller).

STEP	ACTION	VERIFICATION
2	After mate controller has been exercised— Remove plugs from EB jacks.	

AA. Terminating Call Preference During Periods of Originating Sender Overload

Traffic Timer Timeout—SL Relay Not Operated

1	Block nonoperated DS and SL relays and block operated GE relay.	
2	Connect together springs 11T and 12T of GE relay.	
3	Originate call.	Dial tone not heard. RL relay operated.
4	Disconnect call.	
5	Remove blocking tools from SL and GE relays.	
6	Remove connection on GE relay.	

Traffic Timer Timeout—SL Relay Operated

7	At sender make-busy frame— Insert 349A plug into GB jack of any sender subgroup.	
8	At line link frame— Insulate 2B and 3B of DS relay.	
9	Originate call.	Dial tone not heard. RL relay operated.
10	Disconnect call.	

Seizure by Terminating Marker

11	At terminating trouble indicator— Operate keys that will direct call to line link frame under test, as described in Section 216-331-501. ***Do not operate ST key.***	
12	At line link frame— Insert plug of 32A test set into F jack.	

STEP	ACTION	VERIFICATION
13	Block nonoperated TB1 relay.	
14	Originate call.	Dial tone not heard.
15	Momentarily operate white (ST) button of 32A test set.	RL relay operated and released. LA relay operated.
16	Momentarily operate red (RL) button of 32A test set.	
17	Disconnect call.	
18	Remove insulator from DS relay.	
19	Remove blocking tools from DS and TB1 relays.	
20	Remove plug from GB jack.	
21	Disconnect 32A test set.	
22	At terminating trouble indicator frame— Restore to normal all keys.	
AB.	**▶TOUCH-TONE or Rotary Dial Availability Signal**	
1	At sender link frame available to line link under test— Block operated GB 0-9 relays.	
2	At line link frame— Block operated RD relay.	SLA 0-4 relays operated except the one associated with GB relays operated in Step 1.
3	At sender link frame— Remove blocking tool from GB-0 relay.	Associated SLA_ relay operated.
4	Block operated GB-0 relay.	Associated SLA_ relay released.
5	Repeat Steps 3 and 4, removing the blocking tool and reblocking relays GB-1 through GB-9.	Associated SLA_ relay operated and released.
6	Remove blocking tools from GB-0 through GB-9 relays.	SLA 0-4 relays operated.
7	At line link frame— Remove blocking tool from RD relay.	SLA 0-4 relays released.

STEP	ACTION	VERIFICATION
8	Originate a rotary dial call.	Line link handles call satisfactorily.
9	At sender link frame— Block operated TGB 0-9 relays.	
10	At line link frame— Block operated TD relay.	SLA 0-9 relays operated except the one associated with TGB relays operated in Step 9.
11	At sender link frame— Remove blocking tool from TGB-0 relay.	Associated SLA_ relay operated.
12	Block operated TGB-0 relay.	Associated SLA_ relay released.
13	Repeat Steps 11 and 12, removing the blocking tool and reblocking relays TGB-1 through TGB-9.	Associated SLA_ relay operated and released.
14	Remove blocking tools from TGB-0 through TGB-9 relays.	SLA 0-4 relays operated.
15	At line link frame— Remove blocking tool from TD relay.	SLA 0-4 relays released.
16	Originate a TOUCH-TONE call.	Line link handles call satisfactorily.
17	Repeat Steps 1 through 16, using all other sender link frames available to line link under test.	