

SUBSCRIBER SENDER LINK AND CONTROLLER SD-25004-01

TESTS

NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes methods of making operational and alarm feature tests on the subscriber sender link and controller SD-25004-01.

1.02 This section is reissued for the following reasons:

- (a) To revise the title of Test F.
- (b) To revise Test I, providing for optional triggering of the traffic release control.
- (c) To add Test M, providing a test of the false sender group busy alarm.
- (d) To add Test N, providing a test of sender subgroup preference where subgroups are partially converted for TOUCH-TONE® or dial tone first operation.
- (e) To add Test O, providing a test of sender subgroup busy indication. This reissue affects the Equipment Test List.

1.03 The tests covered are:

A. Minor Time Alarm: This test checks timing of minor time alarm and lighting of associated alarm lamps.

B. Major Time Alarm: This test checks timing of major time alarm and lighting of associated alarm lamps when holding feature of controller is in use.

C. Continuity Failure and Double Connection: This test determines that sender link and controller recognizes a sleeve continuity failure, a double

connection condition, or false ground on release lead to sender.

D. False Start: This test checks release of sender link and controller when a calling subscriber abandons a call before dial tone is received.

E. Selection of an Idle District in a Group: This test checks the ability of sender link and controller to select idle district junctors, and to determine when two or more district junctors in a group of ten are available.

F. Regular and Reserve Sender Selection Where Provided: This test checks that sender link and controller prefers sender groups having two or more senders available, and selects sender groups with one sender available when preferred groups are not available. This test also checks that a sender link and controller selects a sender in the subgroup when at least one sender is idle.

G. Sender Group Lockout: This test checks that sender group can serve only one sender link and controller at a time.

H. Early Release and Traffic Release: This test checks release of sender link and controller when a call is abandoned before dial tone is received. This test also checks that the sender link and controller dismisses the line link and controller and restores itself to normal if a call is delayed in sender group selection by heavy traffic.

I. Traffic Release Control Feature: This test checks the traffic release

PAGE

6

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PAGE

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control feature which releases the sender link and controller when triggered by one of two options: 13

- All senders in any subgroup busy.
- Any number up to 15 sender subgroups busy.▲

J. Calls Waiting Alarm (Dialing District Junctors): This test checks timing of calls waiting alarm feature and checks lighting of associated alarm lamps. 13

K. Common Hold Jack: This test checks that the circuit does not time out and release if a trouble condition occurs when common hold jack feature is used. 14

L. Exercise of Emergency Controller Circuit: This test determines that the emergency controller will operate satisfactorily when connected to a regular sender link. 15

M. False Sender Group Busy Alarm: This test checks that the CA lamp is lighted on the sender make busy frame when a false ground appears on lead MB or on the connecting series of SB relay contacts. 16

N. Sender Subgroup Preference—Subgroups Partially Converted for TOUCH-TONE or Dial Tone First Operation: This test checks the function of the sender subgroup preference circuit where the subgroups are partially converted for touch-tone or coin service improvement dial tone first operation. Preference chain splitting and automatic distribution of sender usage features are checked. 16

O. All Senders in Subgroup Busy Indication: This test checks the lamps at the sender make busy frame which indicate that all TOUCH-TONE senders in a partially converted sender

group or all rotary dial senders in the group are busy.▲ 17

1.04 Tests outlined in this section will tend to delay originating service calls and should preferably be made during periods of light traffic.

1.05 All test procedures are performed at the sender link and controller frame unless otherwise specified.

1.06 Perform Tests A through F, H, I, K, and N using both regular and emergency controllers. Connection to the emergency controller and restoral to normal shall be made as outlined under Test L.

1.07 Test F is made only where the reserve sender feature is provided. This feature is not provided where TOUCH-TONE calling or coin service improvement (dial tone first) features are provided.

1.08 Tests N and O are performed where sender subgroups are partially converted for TOUCH-TONE or dial tone first operation.

1.09 Consult office records for the following information:

- Test G—Determine order of appearance of sender groups in LL chains.
- Test I—Determine if traffic release control feature is triggered by GGB and TTGB relays or by traffic register circuit load register. Determine number of busy sender groups required to operate load register.
- Test N—Determine how sender preference chains are split and order of preference. Determine which line link verticals are of rotary dial, TOUCH-TONE, or dial tone first class.

1.10 Local instructions should be followed with reference to recording load register operations when performing Tests F, G, and I.

1.11 Lettered Steps: A letter a, b, c, etc, added to a step number in Part 3 or 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 Apparatus required for each test is shown in Table A. Details for each item are indicated by a paragraph number shown in parenthesis. Equivalent substitutions may be made when required.

TABLE A

APPARATUS	TESTS														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
322A plug	1	1	1			√	1		√						√
349A plug (298A)	√	√	√	√	√		√	√	√	1	1	√		√	
Stopwatch KS-3008	1	1	1	1					1	1					
Handset (Dial hand test set) (2.02)						1		1							1
District junctor test circuit SD-25158-01			1	1											
Test receiver (2.03)							1				1				
Patching cord (2.04)						1		1							1
Testing cord (2.05)			2												
Testing cord (2.06)				1			1				1		1		

√Indicates as required.

2.02 1011G handset (dial hand test set) equipped with a 2W38A cord (or replaced 1011D handset, dial hand test set).

2.03 716C receiver attached to a W2AB cord, equipped with two 360A tools (2W21A cord), a 411 tool, and KS6278 tool.

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

2.05 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord) and two KS6278 tools.

2.06 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS6278 tool, and one 419A tool.

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

SECTION 216-252-501

3. PREPARATION

STEP	ACTION	VERIFICATION
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Tests A, B, and C

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| 1a | If equipped with controller trouble indicator—
Insert 322A plug into TIB- jack associated
with sender link frame under test. | |
| 2b | If testing emergency controller—
Insert 322A plug into TIB jack associated
with emergency controller. | |

Tests A, B, C, D, E, F, H, I, K, and N

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| 3b | If testing emergency controller—
At sender link frame under test—
Disconnect regular controller and connect
emergency controller. | |
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Tests A, B, C, D, E, and I

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| 4 | At sender link frame under test—
Insert 349A plugs into all MB jacks. | |
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Tests B and C

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| 5 | At sender link frame under test—
Insert 349A plug into HD jack. | |
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Tests F, H, and N

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| 6 | At main distributing frame—
Cross-connect T, R, and S terminals of common
B jacks associated with sender link frames to
common B jack terminals associated with line
link frames. | |
| 7 | At a line link frame preferring the sender
link frame under test—
Patch a spare line vertical (rotary dial class)
to common B jack or miscellaneous jack strip
with a 3P27A cord. | |
| 8 | At sender link frame under test—
Plug handset into B jack. | |

4. METHOD

A. Minor Time Alarm

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| 5 | At sender link under test—
Block operated SS relay. | |
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STEP	ACTION	VERIFICATION
6	Block operated GP0 relay.	After 1.5 to 2.5 seconds— White aisle pilot lamp lighted. AL lamp lighted. Minor alarm sounds. At sender make-busy frame or controller trouble indicator— LA- lamp lighted.
7	Momentarily operate AR key.	Minor alarm silenced. White aisle pilot lamp extinguished. At floor alarm cabinet— Guard lamp lighted.
8	Remove blocking tool from GP0 relay.	Circuit restored to normal. AL lamp extinguished. At floor alarm cabinet— Guard lamp extinguished.
9	Repeat Step 6.	
10	Block operated W or WA relay.	
11	Remove blocking tool from GP0 relay.	ON1 relay remains operated.
12	Remove plugs from MB jacks.	All DP relays remain operated.
13	Replace plugs into MB jacks.	
14	Remove blocking tool from W or WA relay.	ON1 relay releases.
15	Momentarily operate GP1 to GP4 relays, one at a time.	TS relay operated each time a GP relay operated.
16	Remove blocking tool from SS relay.	At controller trouble indicator or sender make-busy frame— LA- lamp extinguished.
17b	If testing emergency controller— Disconnect emergency controller and connect regular controller.	
18a	If equipped with controller trouble indicator— Remove plug from TIB- jack.	
19	Remove plugs from MB jacks.	

B. Major Time Alarm

6 Block operated SS relay.

SECTION 216-252-501

STEP	ACTION	VERIFICATION
7	Block operated highest numbered GP- relay used in service.	After 1.5 to 2.5 seconds— White aisle pilot lamp lighted. AL lamp lighted. Major alarm sounds.
8	Remove blocking tool from GP- relay.	GP- relay not released.
9	Momentarily operate the next lower numbered GP- relay used in service.	Higher numbered GP- relay releases. Lower numbered GP- relay locks.
10	Repeat Step 10 for remaining GP- relays.	GP0 relay remains operated.
11	Remove plug from HD jack.	GP0 relay releases. Major alarm silenced. Minor alarm sounds. White aisle pilot lamp remains lighted.
12	Remove blocking tool from SS relay.	
13	Momentarily operate AR key.	Minor alarm silenced. White aisle pilot lamp extinguished.
14b	If testing emergency controller— Disconnect emergency controller and connect regular controller.	
15a	If equipped with controller trouble indicator— Remove plug from TIB- jack.	
16	Remove plugs from MB jacks.	

C. Continuity Failure and Double Connection

6	At sender link frame under test— Block nonoperated SL relay.	
7	Using district junctor test frame, originate a call, selecting any distinct junctor associated with the sender link frame under test.	Sender link and controller is seized. After 1.5 to 2.5 seconds— AL and CF lamps lighted. Major alarm sounds.
8	Remove blocking tool from SL relay.	
9	Remove plug from HD jack.	
10	Momentarily operate AR key.	Major alarm silenced. AL and CF lamps extinguished.
11	Restore district junctor test frame to normal.	
12	Insert plug in HD jack.	

STEP	ACTION	VERIFICATION
13	Block nonoperated AL relay.	
14	Block operated GB8 relay.	
15	At sender make-busy frame— Insert plug in GB jack of sender subgroup associated with GB8 relay of Step 14.	
16	At primary switch associated with district junctor used in Step 7— Using 1W13B cord, connect ground to sleeve terminal 0 on horizontal 8 (A switch) if this link is idle.	
17	Manually operate primary switch (A) select magnet 8.	
18	Using district junctor test frame— Originate a call.	DC relay not operated. DC lamp lighted.
19	After hold magnet operates, release select magnet.	
20	Using 1W13B cord, connect ground to terminal 35 (REL) on terminal strip for C relay.	
21	Remove ground from sleeve terminal.	DC relay operated. DC lamp remains lighted.
22	Block GP- relay that is operated so that it will not release.	
23	Remove plug from HD jack.	DR relay not operated.
24	Disconnect ground from terminal 35.	DR relay operated. DC lamps extinguished.
25	Remove blocking tools from AL, GP-, and GB8 relays.	
26	Remove plugs from MB jacks.	
27	At controller trouble indicator— Remove plug from TIB jack.	
28	Restore district junctor test frame to normal.	
29b	If testing emergency controller— Disconnect emergency controller and connect regular controller.	

SECTION 216-252-501

STEP	ACTION	VERIFICATION
D. False Start		
5	Insulate contacts 1B and 3T of DR relay.	
6	Connect 48-volt battery to 1B contact of GP0 relay.	
7	At district junctor test frame— Originate a call on idle district junctor associated with sender link frame under test. <i>Note:</i> Use local charge test as outlined in Section 216-230-501.	At sender link frame— After 1 to 2 seconds— AB relay operated. Test call completes satisfactorily. Controller alarm not operated.
8	Restore district junctor test frame to normal.	
9	Remove insulators from DR relay.	
10	Remove battery from GP0 relay.	
11b	If testing emergency controller— Disconnect emergency controller and connect regular controller.	
12	Remove plugs from MB jacks.	
E. Selection of an Idle District in a Group		
5	At sender link frame under test— Block nonoperated W relay.	
6	At district junctor frame associated with sender link under test— Insert 349A plugs into MB- jacks of district juncctors 1 through 9 associated with 0 district junctor group.	
7	At sender link frame— Block operated SS, GP0, and BA0 relays in the order named.	TM relay not operated. D0 relay operated.
8	Remove blocking tools from GP0 and BA0 relays.	
9	At district junctor frame— Remove plug from MB jack 1 and place it in MB jack 0.	
10	Repeat Steps 7 through 9, substituting next higher numbered district junctor and D- relay until all D- relays have been tested.	D1 through D9 relays associated with idle district junctor operated.

STEP	ACTION	VERIFICATION
11	After D9 relay operates— Remove plug from MB- jack of district junctor 8. (District junctors 0 to 7 are still made busy.)	
12	Block operated BA0 and GP0 relays.	TM, D8, and D9 relays operated.
13	Remove blocking tools from BA0, GP0 relays.	
14	At district junctor frame— Shift plugs from district junctors 6,7 to 8,9.	
15	At sender link frame— Block operated GP0 and BA0 relays.	TM, D6, D7 relays operated.
16	Repeat Steps 13, 14, and 15 substituting next lower numbered pair of district junctors and D- relays until all D relays have been tested.	
17	Remove blocking tools from GP0, BA0, W, and SS relays.	
18b	If testing emergency controller— Block operated any two D relays on the regular controller.	TM relay (regular controller) not operated.
19b	Remove blocking tools from D relays on regular controller.	
20b	Disconnect emergency controller and connect regular controller.	
21	At district junctor frame and sender link frame— Remove plugs from MB jacks.	
F. Regular and Reserve Sender Selection—Where Provided		
9	Block operated all but one GB0 through GB9 relays.	
10	Block nonoperated R1, R2, and W relays.	
11	At sender make-busy frame— Insert 322A plugs into all but two sender MB jacks of sender subgroup associated with unblocked relay of Step 9.	
12	At sender link frame under test— Using handset, originate a call.	SG- relay associated with unblocked GB relay operated. Dial tone heard.

SECTION 216-252-501

STEP	ACTION	VERIFICATION
	<i>Note:</i> It may be necessary to originate a second call since the preference of line link for sender link frame alternates between calls.	
13	Disconnect handset.	
14	At sender make-busy frame— Insert 322A plug into one of two remaining MB jacks.	
15	At sender link frame— Attempt to originate a call. (See Note, Step 12)	SG relays not operated.
16	Disconnect handset.	
17	Remove blocking tools from R1 and R2 relays.	
18	Originate a call.	R1 and R2 relays operated. SG relay associated with unblocked GB relay operated. Dial tone heard.
19	Disconnect handset.	
20	At sender make-busy frame— Insert a make-busy plug into the remaining sender MB jack.	
21	At sender link frame— Originate two successive calls.	Both calls served by another sender link and controller circuit.
22	At sender make-busy frame— Remove all plugs from sender MB jacks.	
23	At sender link frame— Remove blocking tool from one of GB- relays in sender subgroup that has not been tested.	
24	Block operated GB- relay associated with sender subgroup just tested.	
25	Repeat Steps 10 through 24, shifting plugs each time until all GB- relays and associated sender subgroups have been tested.	
26	Remove blocking tools from GB-, W relays.	
27b	If testing emergency controller— Disconnect emergency controller and connect regular controller.	

STEP	ACTION	VERIFICATION
28	At line link frame— Remove patching cord.	
29	At sender link frame— Remove handset from B jack.	

G. Sender Subgroup Lockout

1	At sender make-busy frame— Insert 322A plug into GB- jack of lowest numbered subgroup of senders.	Associated GB- lamp lighted.
2	At sender link associated with last LL- relay in chain of sender subgroup made busy— Insert 349A plugs into all MB- jacks.	
3	Block operated associated SG- relay.	
4	Using 1W13B cord, connect battery to contact 2B of SG- relay blocked operated.	Associated LL-, SS relays operated.
5	Test contact 2T for absence of ground on each lower numbered LL- relay in chain of sender group made busy.	Each 2T contact tests ungrounded.
6	Insulate contact 2B of operated LL relay.	
7	Momentarily operate each lower numbered LL- relay in chain of sender subgroup made busy.	LL- relay operated in Step 4 releases each time a lower numbered LL- relay is operated.
8	Remove battery from contact 2B of SG- relay.	LL- relay remains operated.
9	Remove all blocking tools and insulators.	LL-, SS relays release.
10	Remove plugs from MB jacks.	
11	Repeat Steps 2 through 10, using sender link associated with next lower numbered LL- relay in the chain.	
12	Repeat Step 11 until each LL- relay in the chain has been tested.	
13	Remove make-busy plug from sender subgroup GB- jack.	Associated GB- lamp extinguished.
14	Repeat Steps 1 through 13 on each of the LL- relay chains.	

SECTION 216-252-501

STEP	ACTION	VERIFICATION
H. Early Release and Traffic Release		
Early Release		
9	Block nonoperated W relay.	
10	Using handset, originate a call.	
	<i>Note:</i> It may be necessary to originate the call a second time since the preference of the line link frames for the sender links alternates between calls.	
11	After the sender link has been selected but before GH relay operates— Disconnect the call.	Sender link control circuit releases immediately.
12	Remove blocking tool from W relay.	
Traffic Release		
13	At line link frame— Insert 349A plugs into SS0 through SS9 jacks of district junctor groups not associated with sender link frame under test.	
14	At sender link frame— Block nonoperated SG0 through SG9 relays.	
15	Using handset, originate a call.	Repeated seizure and release of sender link. LL0 through LL9 relays not operated.
16	Remove blocking tool from one of SG- relays before line link times out (approximately 6 seconds).	Dial tone heard.
17	Disconnect call.	
18	Remove blocking tools from all SG- relays.	
19	Originate a call.	All SG0 through SG9 relays operated. Only one LL- relay operated.
20	Repeat Step 19.	No SG- relay in emergency controller circuit operates. If testing emergency controller— No SG- relay in regular controller circuit operates.
21b	If testing emergency controller— Disconnect emergency controller and connect regular controller.	

STEP	ACTION	VERIFICATION
22	Disconnect handset.	
23	At line link frame— Remove plugs from SS- jacks.	
24	Remove patching cord.	
I. Traffic Release Control Feature		
5c	If control feature is triggered by SGB and TTGB relays— At sender make-busy frame— Insert 332A plug into GB- jack of a sender subgroup available to sender link under test.	LI lamp lighted.
6d	◆If control feature is triggered by traffic register circuit— At sender make-busy frame— Insert 332A plugs into required number of GB- jacks to operate load register.◆	LI lamp lighted.
7	Insulate 5T contact of SG0 relay.	
8	Block nonoperated W relay.	
9	Block operated ZA and HD relays.	SS1 relay operated. TR and OS relays operated.
10c	If control circuit is triggered by SGB and TTGB relays— At sender make-busy frame— Remove plug from sender subgroup GB- jack.	In 28 to 58 seconds— SS1 relay releases. L1 lamp extinguished.
11d	◆If control circuit is triggered by traffic register circuit— At sender make-busy frame— Remove plugs from GB- jacks.◆	In 28 to 58 seconds— SS1 relay releases. LI lamp extinguished.
12	Remove all insulators and blocking tools from relays.	All relays released.
13b	If testing emergency controller— Disconnect emergency controller and connect regular controller.	
14	Remove all MB plugs.	
J. Calls Waiting Alarm—Dialing District Junctors		
1	Make busy the group of dialing district junctors to be tested.	

SECTION 216-252-501

STEP	ACTION	VERIFICATION
2	Block operated associated CW relay.	DPA relay operated. All DP- relays associated with district junctor groups operated. Within 6 seconds— CWA relay operated. Within 5 seconds after CWA relay operated— CWB relay operated. Major alarm sounds. At sender link frame— CW lamp lighted. At sender make busy or controller trouble indicator frame— CW lamp associated with group of dialing district junctors lighted.
3	Remove blocking tool from CW relay.	
4	Momentarily operate R key.	CW lamps extinguished. Major alarm silenced.
5	Block operated DP- relay associated with group of dialing district junctors under test.	Within 6 seconds— CWB relay operated. Within 5 seconds after CWB relay operated— CWA relay operated. Major alarm sounds. At sender link frame— CW lamp lighted. At sender make-busy or controller trouble indicator frame— CW lamp associated with group of dialing district junctors lighted.
6	Remove blocking tool from DP- relay.	
7	Momentarily operate R key.	CW lamps extinguished. Major alarm silenced.
8	Release the group of dialing district junctors.	
K. Common Hold Jack		
5	At sender make-busy or controller trouble indicator frame— Check for absence of ground on the following contacts: 2, 4, 6, 8, top and 2, 4, 6, 8, 10, 12 bottom of A1 through A4 relays; 2, 4, top of A relay.	No contacts grounded.
6	Insert 349A plug into H jack associated with common hold jack circuit.	At sender link frame under test— HL relay operated.

STEP	ACTION	VERIFICATION
7	At sender link frame under test— Insulate 3B of TS relay.	HL relay remains operated.
8	Using 1W13B cord, momentarily connect ground to 3T of TB relay.	Major alarm sounds. Frame and aisle pilot lamps lighted. HD relay operated. HD lamp associated with common hold jack lighted.
9	Momentarily operate AR key (or HR key if installed).	Major alarm silenced. Frame and aisle pilot lamps extinguished.
10	Remove make-busy plug from common hold jack.	
11	Momentarily operate HT key.	HD lamp extinguished.
12	At sender link frame— Remove plugs from MB jacks.	
13b	If testing emergency controller— Disconnect emergency controller and connect regular controller.	

L. Exercise of Emergency Controller

1	At the emergency controller— Determine that it is not in use.	At sender link frame— EF and EM lamps extinguished. If equipped with controller trouble indicator— No EC- lamp lighted.
2	At sender link frame under test— Insert 349A plugs into all MB jacks.	
3	Turn switches A and B to OFF.	
4	Turn switches A-EM and B-EM to ON.	EF and EM lamps lighted. If equipped with controller trouble indicator— EC- lamp lighted.
5	Remove plugs from MB jacks.	At emergency controller frame— Emergency controller handles calls satisfactorily.
6	Reinsert plugs into MB jacks.	
7	Turn switches A-EM and B-EM to OFF.	
8	Turn switches A and B to ON.	EF and EM lamps extinguished. If equipped with controller trouble indicator— EC- lamp extinguished.

SECTION 216-252-501

STEP	ACTION	VERIFICATION
9	Remove plugs from MB jacks.	Sender link and regular controller handle calls satisfactorily.
M. False Sender Group Busy Alarm		
1	At SB0 relay of lowest numbered rotary dial sender subgroup— Using 1W13B cord, connect ground to 6 top contact of SB0 relay. <i>Note:</i> SB0 relay must be normal.	At sender make-busy frame— CA lamp lighted.
2	Remove ground from SB0 relay.	CA lamp extinguished.
3	Repeat Steps 1 and 2 for all other rotary dial sender subgroups.	
4	At SB- relay associated with preferred sender of lowest numbered touch tone or dial tone first sender subgroup— Using 1W13B cord, connect ground to 6 top contact of SB- relay. <i>Note:</i> SB- relay must be normal.	At sender make-busy frame— CA lamp lighted.
5	Remove ground from SB- relay.	CA lamp extinguished.
6	Repeat Steps 4 and 5 for other TOUCH TONE or dial tone first sender subgroups.	
N. Sender Subgroup Preference—Subgroups Partially Connected for TOUCH-TONE or Dial Tone First Operation		
9	At sender link frame under test— Block operated all but one GB- relay.	
10	Using handset, originate a call. <i>Note:</i> It may be necessary to originate a second call since the preference of the line link frame for the sender link frame alternates between calls.	SG- relay associated with unblocked GB- relay operated. Preferred SD- relay (rotary dial class) operated and locked. DT heard.
11	Disconnect call.	Preferred SB- relay remains operated.
12	Repeat Step 10.	Next SB- relay in preference chain operates and locks.
13	Repeat Step 11.	Next SB- relay in preference chain remains operated.

STEP	ACTION	VERIFICATION
14	Repeat Steps 10 and 11 until last SB- relay in preference chain operates and locks.	When last SB- relay in preference chain operates— All others release. When last call is disconnected— Last SB- relay releases.
15	At line link frame, remove patching cord from rotary dial class line vertical and reconnect to TOUCH-TONE or dial tone first class line vertical.	
16	Repeat Steps 10 through 14 observing SB-relay associated with TOUCH-TONE or dial tone first senders.	
17	At line link frame— Remove patching cord.	
18	At sender link frame— Remove handset from B jack.	
19b	If testing emergency controller— Disconnect emergency controller and connect regular controller.	
20	Remove blocking tools from GB- relays.	
0. All Senders in Subgroup Busy Indication		
1	At sender make-busy frame— Insert 322A make-busy plugs into MB jacks of all rotary dial senders in first sender group.	Associated GB lamp lighted.
2	Remove plugs from MB jacks of rotary dial senders and insert into MB jacks of TOUCH-TONE senders in first sender group.	GB lamp extinguished. Associated TTGB lamp lighted.
3	Move plugs from MB jacks of TOUCH-TONE senders.	TTGB lamp extinguished.
4	Repeat Steps 1, 2, and 3 using MB jacks of senders in remaining sender groups.	
5	Insert make-busy plug into GB jack of first subgroup of senders.	GB and TTGB lamps lighted.
6	Remove plug from GB jack.	GB and TTGB lamps extinguished.
7	Repeat Steps 5 and 6 using GB jacks of remaining sender subgroups.◀	