

## EMERGENCY LINE CIRCUITS TESTS NO. 5 CROSSBAR OFFICES

### 1. GENERAL

1.01 This section describes a method of testing emergency line circuits in No. 5 crossbar offices.

1.02 This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

1.03 The tests covered are:

**A. Manual Originating and Incoming Calls:**

This test checks that the transfer feature from the distant office is operative. It checks that the customer can obtain manual service during periods of emergency and checks the supervisory features. If the trunk associated with the emergency line circuit under test appears on a trunk link frame, a check is made that a call established over this trunk will not be interrupted when the transfer key is operated.

**B. Dial Incoming Calls:** This test checks that a call can be completed to the dial customer through the link frames when the emergency line circuit is in the transferred condition. It checks that a busy indication is given to a calling customer when the subscriber line associated with the emergency line circuit is busy on a call to or from the switchboard. A check is also made that the trunk used with the emergency line circuit tests busy under the transferred condition.

**C. Monitoring by Operator:** This test checks that the operator at the distant toll or DSA switchboard can monitor on an established dial call under the transferred condition.

1.04 Tests A and C require action and verification at the distant DSA or toll switchboard. Test B requires action and verification at the master test frame.

1.05 While performing these tests, any customer line on which service cannot be denied should be given emergency service in accordance with local practices.

1.06 The tests described in this section affect the traffic handling capabilities of the office and should be made during periods of light traffic.

1.07 **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

#### All Tests

2.01 No. 322A (make busy) plugs, as required.

2.02 No. 1011G dial hand test set equipped with a No. 2W41A cord assembly consisting of a W2CJ cord, a No. 471A jack, a No. 360A and a 360B tool, and two No. 419A tools (or the replaced No. 1011C dial hand test set).

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

#### Test A

2.04 No. 411A tool (for checking energized relays).

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**2.05** Two testing cords, No. 893 cord, 3 feet long, equipped with two No. 360A tools (No. 1W13A cord) and two No. 419A tools. (One used at distant office.)

**Tests B and C**

**2.06** Master test control circuit, SD-25800-01.

**2.07** Master test frame telephone, key, and lamp circuit, SD-25744-01.

**2.08** Master test frame voltmeter test circuit, SD-25792-01.

**2.09** Master test frame trunk test circuit, SD-25918-01.

**3. PREPARATION**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
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**Tests B and C**

- |   |  |                         |
|---|--|-------------------------|
| 1 | At master test frame —<br>Restore to normal all operated keys on master test control, trunk test, voltmeter panels.                                      |                         |
| 2 | At master test control panel —<br>Operate RL key momentarily.<br><i>Note:</i> At master test control panel, operate REC key to obtain record as desired. | All lamps extinguished. |

**4. METHOD**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
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**A. Manual Originating and Incoming Calls**

- |   |  |  |
|---|--|--|
| 1 | At trunk circuit associated with emergency line circuit being tested —<br>Make trunk busy by inserting make-busy plug into make-busy jack or operate make-busy switch. |  |
|---|--|--|

**For Trunk Circuit Associated With Emergency Line Circuit Which Has Line Link Appearance**

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|----|--|------------------|
| 2  | At trunk circuit —<br>Observe trunk is idle.   | CT relay normal. |
| 3  | At emergency line circuit —<br>Block nonoperated all A or D relays associated with group of emergency lines being tested.  |                  |
| 4a | If distant office is equipped with emergency transfer circuit SD-55775-01 —<br>At distant office —<br>Short contacts 11, 12T of T relay.   |                  |
| 5b | If distant office is equipped with emergency transfer circuit SD-96517-01, not arranged for tone transfer —<br>At distant office —<br>Short contact 21 make to 21 stationary of T relay. |                  |

STEP	ACTION	VERIFICATION
6c	If distant office is equipped with emergency transfer circuit SD-96517-01, arranged for tone transfer — At distant office — Short contacts 21 make to 21 stationary, 22 make to 22 stationary, 23 make to 23 stationary of T relay.	
7	At distant office — Block operated associated TR relay.	

**For Trunk Circuit Associated With Emergency Line Circuit Which Has Trunk Link Appearance**

8	At trunk circuit — Observe trunk is idle.	S1 relay normal.
9	Block operated S1 relay associated with emergency line being tested.	
10	At emergency line circuit — Block nonoperated all A relays associated with group of emergency lines being tested.	
11a	If distant office is equipped with emergency transfer circuit SD-55775-01 — At distant office — Short contacts 7, 8T of TA relay.	
12b	If distant office is equipped with emergency transfer circuit SD-96517-01, not arranged for tone transfer — At distant office — Short contact 11 make to 11 stationary of L relay.	
13c	If distant office is equipped with emergency transfer circuit SD-96517-01, arranged for tone transfer — At distant office — Short contacts 11 make to 11 stationary, 12 make to 12 stationary of L relay.	
14c	Short contacts 1, 2 of TRO key.	

**For Trunk Circuit Associated With Emergency Line Circuit Which Has Either Line Link or Trunk Link Appearance**

15d	If emergency line circuit SD-25701-01 is used —	At emergency line circuit — B or E relay operated. A or D relay energized.
16d	Operate switch of hand test set to MON position.	
17d	Connect hand test set to contacts 2T, 2B of T1 relay.	Ringing, conversation, dial tone not heard. Continue test. <i>Note:</i> Should line test busy or an attempt to use the line occur, discontinue test until line is idle.

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STEP	ACTION	VERIFICATION
18e	If emergency line circuit SD-26128-01 is used —	At emergency line circuit — B relay operated. Associated A relay energized.
19e	Operate switch of hand test set to MON position.	
20e	Connect hand test set to contacts 11, 12 stationary of T relay.	<p>Ringing, conversation, dial tone not heard. Continue test.</p> <p><i>Note:</i> Should line test busy or an attempt to use the line occur, discontinue test until line is idle.</p>
21f	If emergency line circuit SD-26138-01 is used —	At emergency line circuit — E relay operated. Associated A relay energized.
22f	Operate switch of hand test set to MON position.	
23f	Connect hand test set to contacts 11, 12 stationary of T relay.	<p>Ringing, conversation, dial tone not heard. Continue test.</p> <p><i>Note:</i> Should line test busy or an attempt to use the line occur, discontinue test until line is idle.</p>
24	Operate switch of hand test set to TALK position.	Dial tone heard. Customer line idle.
25	Operate switch of hand test set to MON position.	
26g	<p>If trunk has line link appearance and emergency line circuit SD-25701-01 is used —</p> <p>At emergency line circuit — Short one pair of make contacts on D relay corresponding to emergency line being tested.</p>	T, T1 relays operated.
27h	<p>If trunk has trunk link appearance and emergency line circuit SD-25701-01 is used —</p> <p>At emergency line circuit — Short one pair of make contacts on A relay corresponding to emergency line being tested.</p>	T, T1 relays not operated.
28i	<p>If trunk has line link appearance and emergency line circuit SD-26128-01 or SD-26138-01 is used —</p> <p>At emergency line circuit — Short one pair of make contacts on A relay corresponding to emergency line being tested.</p>	T relay operated.

STEP	ACTION	VERIFICATION
29j	If trunk has trunk link appearance and emergency line circuit SD-26128-01 or SD-26138-01 is used — At emergency line circuit — Short one pair of make contacts on A relay corresponding to emergency line being tested.	T relay not operated.
30h	If trunk has trunk link appearance and emergency line circuit SD-25701-01 is used — At trunk circuit — Remove blocking tool from S1 relay.	T, T1 relays operated.
31j	If trunk has trunk link appearance and emergency line circuit SD-26128-01 or SD-26138-01 is used.— At trunk circuit — Remove blocking tool from S1 relay.	T relay operated.
32	At emergency line circuit — Disconnect hand test set.	
33d	If emergency line circuit SD-25701-01 is used — At emergency line circuit — Insulate 1T, 1B contacts of T1 relay.	
34d	Connect hand test set to 1T, 1B fixed contacts of T1 relay.	
35e	If emergency line circuit SD-26128-01 is used — At emergency line circuit — Insulate 11, 12 make contacts of T relay.	
36e	Connect hand test set to 4, 8 make contacts of TB relay.	
37f	If emergency line circuit SD-26138-01 is used — At emergency line circuit — Insulate 11, 12 make contacts of T relay.	
38f	Connect hand test set to 4, 8 make contacts of TB relay.  <i>Note:</i> In Steps 36e, 38f, if customer line is PBX trunk requiring ground removed from tip, apply ground to fixed contact 4 of TB relay.	
39	Operate switch on hand test set to TALK position.	At distant office — Call answered. Cord supervisory lamp not lighted.
40	Operate switch on hand test set several times from TALK to MON position.	At distant office — Cord supervisory lamp flashes in response.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
41	At distant office — Operate ringing key.	
42	Operate switch on hand test set to MON position.	Ringling current heard in hand test set.
43	Operate switch on hand test set to TALK position.	

**For Trunk Circuit Associated With Emergency Line Circuit Which Has Line Link Appearance**

- 44a If distant office is equipped with emergency transfer circuit SD-55775-01 —  
Remove short from contacts 11, 12T of T relay.
- 45b If distant office is equipped with emergency transfer circuit SD-96517-01, not arranged for tone transfer —  
Remove short from contact 21 make to 21 stationary of T relay.
- 46c If distant office is equipped with emergency transfer circuit SD-96517-01, arranged for tone transfer —  
Remove short from contacts 21 make to 21 stationary, 22 make to 22 stationary, 23 make to 23 stationary of T relay.
- 47 At emergency line circuit —  
Remove blocking tools from all A or D relays.
- 48 At distant office —  
Remove blocking tool from TR relay.

**For Trunk Circuit Associated With Emergency Line Circuit Which Has Trunk Link Appearance**

- 49 At trunk circuit —  
Remove blocking tool from S1 relay, if blocked.
- 50 At emergency line circuit —  
Remove blocking tool from all A relays.
- 51a If distant office is equipped with emergency transfer circuit SD-55775-01 —  
Remove short from contacts 7, 8T of TA relay.
- 52b If distant office is equipped with emergency transfer circuit SD-96517-01, not arranged for tone transfer —  
Remove short from contact 11 make to 11 stationary of L relay.

STEP	ACTION	VERIFICATION
53c	If distant office is equipped with emergency transfer circuit SD-96517-01, arranged for tone transfer — Remove short from contacts 11 make to 11 stationary, 12 make to 12 stationary of L relay.	
54c	Remove short from contacts 1, 2 of TRO key.	

**For Trunk Circuit Associated With Emergency Line Circuit Which Has Either Line Link or Trunk Link Appearance**

55g	If trunk has line link appearance and emergency line circuit SD-25701-01 is used — At emergency line circuit — Remove short from make contact of D relay.	
56h	If trunk has trunk link appearance and emergency line circuit SD-25701-01 is used — At emergency line circuit — Remove short from make contact of A relay.	
57i	If trunk has line link appearance and emergency line circuit SD-26128-01 or SD-26138-01 is used — At emergency line circuit — Remove short from make contact of A relay.	
58j	If trunk has trunk link appearance and emergency line circuit SD-26128-01 or SD-26138-01 is used — At emergency line circuit — Remove short from make contact of A relay.	
59d	If emergency line circuit SD-25701-01 is used — Remove insulator from 1T, 1B contacts of T1 relay.	
60e	If emergency line circuit SD-26128-01 is used — Remove insulator from 11, 12 make contacts of T relay.	
61f	If emergency line circuit SD-26138-01 is used — Remove insulator from 11, 12 make contacts of T relay.	

STEP	ACTION	VERIFICATION
62	Disconnect hand test set. <i>Note:</i> If customer line was PBX trunk requiring ground removed from tip, remove ground from fixed contact 4 of TB relay.	
63	At trunk circuit — Restore circuit to normal operation by removing make-busy plug or returning make-busy switch to normal.	
<b>B. Dial Incoming Calls</b>		
3	At trunk circuit associated with emergency line being tested — Make trunk busy by inserting make-busy plug into make-busy jack, or operate make-busy switch.	
4a	If trunk circuit associated with emergency line circuit has line link appearance — Observe trunk is idle.	CT relay normal.
5b	If trunk circuit associated with emergency line circuit has trunk link appearance — Observe trunk is idle.	S1 relay normal.
6	Operate switch of hand test set to MON position.	
7c	If emergency line circuit SD-25701-01 is used — At emergency line circuit — Connect hand test set to contacts 2T, 2B of T1 relay.	Ringing, conversation, dial tone not heard. Continue test. <i>Note:</i> Should line test busy or an attempt to use the line occur, discontinue test until line is idle.
8d	If emergency line circuit SD-26128-01 or SD-26138-01 is used — At emergency line circuit — Connect hand test set to contacts 11, 12 stationary of T relay.	Ringing, conversation, dial tone not heard. Continue test. <i>Note:</i> Should line test busy or an attempt to use the line occur, discontinue test until line is idle.
9	At emergency line circuit — Operate switch of hand test set to TALK position.	Dial tone heard. Customer line idle.
10	Operate switch of hand test set to MON position.	
11c	If emergency line circuit SD-25701-01 is used — At emergency line circuit — Block operated T, T1 relays.	
12d	If emergency line circuit SD-26128-01 or SD-26138-01 is used — At emergency line circuit — Block operated T relay.	

STEP	ACTION	VERIFICATION
13	At master test frame — Restore all keys.	
14	Operate LT key.	
15	Operate IC- key to select incoming class which can complete to line under test.	
16e	If line number is extra theoretical — Operate E key.	
17	Operate MT- key to select a special marker.	
18	Operate A-, B-, C-, and D- keys to select customer line number.	
19	At master test frame voltmeter test panel — Operate T key.	
20	At master test frame — Operate ST key momentarily.	LT and MRL lamps light.
21	At emergency line circuit — Operate switch of hand test set to TALK position.	Talking circuit established to master test frame.
22	At master test frame — Operate RL key momentarily.	All lamps extinguished.
23	At emergency line circuit — Disconnect hand test set.	
24	Block operated H1 relay.	
25	At master test frame — Restore all keys.	
26	Operate INC key.	
27	Operate IC- and ITC- keys to select an incoming and trunk class which can com- plete to line under test.	
28	Operate MT- key.	
29	Operate A- through E- keys as required to select customer line number.	
30	Operate any FG- and FS- keys.	
31	Operate PBXH key.	

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STEP	ACTION	VERIFICATION
32	Operate S- key associated with units digit of line under test.	
33	Operate ST key momentarily	MRL and BY lamps light.
34	Operate RL key momentarily.	All lamps extinguished.
35	At emergency line circuit — Remove blocking tool from H1 relay.	
36c	If emergency line circuit SD-25701-01 is used — Insulate contact 2B of L1 relay.	
37d	If emergency line circuit SD-26128-01 or SD-26138-01 is used — Insulate contact 6 break of H1 relay.	
38	Block operated L1 relay.	
39	At master test frame — Operate ST key momentarily.	MRL and BY lamps light.
40	Operate RL key momentarily.	All lamps extinguished.
41	At emergency line circuit — Remove blocking tool from L1 relay.	
42	Remove insulator from L1 or H1 relay.	
43c	If emergency line circuit SD-25701-01 is used — Remove blocking tool from T1 relay.	
44d	If emergency line circuit SD-26128-01 or SD-26138-01 is used — Insulate contacts 10, 11, and 12 make of T relay.	
45	At trunk circuit — Restore circuit to normal operation by removing make-busy plug or restoring make-busy switch to normal.	
46a	If trunk circuit associated with emergency line circuit has line link appearance — At master test frame — Operate IC- and ITC- keys to select an incoming and trunk class which can complete to trunk under test.	
47a	Operate A- through E- keys as required to select trunk line number.	

STEP	ACTION	VERIFICATION
48a	Operate S- key associated with units digit of trunk line number.	
49b	If trunk circuit associated with emergency line circuit has trunk link appearance — At master test frame — Restore all keys.	
50b	Operate A-, B-, and C- keys as required to select code having access to trunk.	
51b	Operate CST-, CSU- keys and CGB key if required to select class of service having access to trunk.	
52b	Operate FG-, FS- keys and GPA/GPB keys if required to select trunk associated with line under test.	
53b	Operate KY and MISC keys.	
54b	Operate MT- key to select marker.	
55b	Operate RAO key to prevent marker route advance.	
56b	Operate TS- key and TS key to select trunk associated with line under test.	
57b	At trunk test panel — Operate TLK key to simulate calling customer off-hook condition.	
58	Operate ST key momentarily.	BY or TB lamp lights.
59	Operate RL key momentarily.	All lamps extinguished.
60	At emergency line circuit — Remove blocking tool from T relay.	
61d	If emergency line circuit SD-26128-01 or SD-26138-01 is used — At emergency line circuit — Remove insulator from contacts 10, 11, 12 make of T relay.	

STEP	ACTION	VERIFICATION
<b>C. Monitoring by Operator</b>		
3	At trunk circuit associated with emergency line being tested — Make trunk busy by inserting make-busy plug into make-busy jack, or operate make-busy switch.	
4a	If trunk circuit associated with emergency line circuit has line link appearance — Observe trunk is idle.	CT relay normal.
5b	If trunk circuit associated with emergency line circuit has trunk link appearance — Observe trunk is idle.	S1 relay normal.
6	Operate switch of hand test set to MON position.	
7c	If emergency line circuit SD-25701-01 is used — At emergency line circuit — Connect hand test set to contacts 2T, 2B of T1 relay.	Ringing, conversation, dial tone not heard. Continue test.  <i>Note:</i> Should line test busy or an attempt to use the line occur, discontinue test until line is idle.
8d	If emergency line circuit SD-26128-01 or SD-26138-01 is used — At emergency line circuit — Connect hand test set to contacts 11, 12 stationary of T relay.	Ringing, conversation, dial tone not heard. Continue test.  <i>Note:</i> Should line test busy or an attempt to use the line occur, discontinue test until line is idle.
9c	If emergency line circuit SD-25701-01 is used — Disconnect hand test set from T1 relay.	
10c	Block operated T, T1 relays.	
11c	Insulate contacts 1T, 1B of T1 relay.	
12d	If emergency line circuit SD-26128-01 or SD-26138-01 is used — Disconnect hand test set from T relay.	
13d	Block operated T relay.	
14d	Insulate contacts 11, 12 make of T relay.	

STEP	ACTION	VERIFICATION
15e	If information or intercepting trunk associated with emergency line circuit has line link appearance — At master test frame — Operate A-, B-, C-, D- keys to select customer line number.	
16e	Operate IC- key to select type of office.	
17e	Operate LT key to select class of test.	
18e	Operate MT- key to select special marker.	
19e	At master test frame voltmeter test circuit panel — Operate T key to connect telephone to master test circuit.	
20	Operate ST key momentarily.	
21a	If trunk circuit associated with emergency line circuit has line link appearance — At distant office — Block operated associated TR relay.	
22	At distant office switchboard — Connect calling cord to jack of trunk being tested.	
23	Operate talking key.	Talking circuit established from master test frame to distant switchboard.
24	Disconnect calling cord.	
25a	If trunk circuit associated with emergency line circuit has line link appearance — At distant office — Remove blocking tool from TR relay.	
26	At master test frame — Operate RL key momentarily.	
27c	If emergency line circuit SD-25701-01 is used — At emergency line circuit — Remove blocking tools from T, T1 relays.	

STEP	ACTION	VERIFICATION
28d	If emergency line circuit SD-26128-01 or SD-26138-01 is used — At emergency line circuit — Remove blocking tool from T relay.	
29c	If emergency line circuit SD-25701-01 is used — Remove insulators from contacts 1T, 1B of T1 relay.	
30d	If emergency line circuit SD-26128-01 or SD-26138-01 is used — Remove insulators from 11, 12 make contacts of T relay.	
31	Restore trunk associated with emergency line circuit. At trunk circuit — Remove make-busy plug from make-busy jack, or restore make-busy switch to normal.	