

AUXILIARY LINE CIRCUITS  
SERVING MORE THAN ONE OFFICE  
IN THE SAME BUILDING  
TESTS  
NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing auxiliary line circuits serving more than one office in the same building using the master test control circuit in No. 5 crossbar offices.

1.02 This section is reissued:

- (a) To include extra theoretical offices.
- (b) To revise Tests (A) through (C) and (F) through (N) to include circuits equipped with D-type terminal strips.

1.03 The tests and features tested are:

AUXILIARY LINE CIRCUITS SERVING TWO OR  
THREE MARKER GROUPS IN THE SAME BUILDING

(A) Seizure - Terminating Call: This test checks the seizure of the auxiliary line circuit from each of two or three marker groups, and the continuity of tip, ring and sleeve leads.

(B) Seizure - Originating Call - Auxiliary Line Circuit Arranged for 2-Way Operation: This test checks that calls may be originated through the auxiliary line circuit.

(C) Busy Indication: This test checks that the auxiliary line circuit gives a busy indication to all marker groups when seized on a call from one marker group.

(D) Simultaneous Seizure - Delayed Completion on Call from First Preferred No. 5 Crossbar Marker Group: This test checks that a call from the first preferred marker group is connected to the auxiliary line circuit under the following simultaneous seizure conditions. The call from the first preferred marker group seizes the auxiliary line circuit but immediate completion of the call is prevented because of a just prior seizure by a call from a less preferred marker group.

(E) Simultaneous Seizure - Denied Completion of Calls from Less Preferred Marker Groups: This test checks that a call from a more preferred marker group is completed and a call from a less preferred marker group is denied completion when a simultaneous seizure occurs in which the Crelays associated with the respective marker group are operated simultaneously.

(F) Busy - Called Party Fails to Disconnect - Auxiliary Line Circuit Arranged for Terminating Service Only: This test checks that an auxiliary line circuit, arranged for terminating service only, is held busy when the called party fails to disconnect.

(G) Incoming Busy - Incoming Busy Circuit Provided: This test checks that the auxiliary line circuit is made busy when the associated "B" service assistant circuit is seized to originate a call.

AUXILIARY LINE CIRCUITS SERVING OFFICE A  
AND OFFICE B OF A SINGLE MARKER GROUP -  
TWO-WAY SERVICE

(H) Seizure - Terminating Call: This test checks the seizure of the auxiliary line circuit from office A and office B and checks the continuity of tip, ring and sleeve leads.

(I) Busy Indication: This test checks that the auxiliary line circuit, when seized, gives a busy indication to each office served.

(J) Seizure - Originating Call: This test checks that calls may be originated through the auxiliary line circuit.

AUXILIARY LINE CIRCUITS SERVING OFFICE A  
AND OFFICE B SINGLE MARKER GROUP - TERMINATING SERVICE ONLY

(K) Seizure: This test checks the seizure of the auxiliary line circuit from office A and office B and checks the continuity of tip, ring and sleeve leads.

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(L) Busy Indications: This test checks that the auxiliary line circuit, when seized, gives a busy indication to each office served.

(M) Busy - Called Party Fails to Disconnect: This test checks that the auxiliary line circuit is held busy when the called party fails to disconnect.

(N) Incoming Busy from "B" Service Assistant Circuit: This test checks that the auxiliary line circuit is made busy when the associated "B" service assistant circuit is seized to originate a call.

1.04 Tests (A), (D), (H) and (K) require action and verification at the master test frame and relay rack.

1.05 Tests should be completed as quickly as possible to avoid interference with service calls.

1.06 Lettered Steps: The letters a, b, c, etc are added to a step number to indicate that the step covers an action which may or may not be required, depending on local conditions. The conditions under which the lettered step or series of steps should be made are given in the ACTION column, and all steps governed by the same condition are designated by the same letter. Where a condition does not apply the associated step should be omitted.

2. APPARATUS

2.01 The apparatus required for each test is shown in the following list. The details of each item are covered in the indicated paragraphs.

3. METHOD

AUXILIARY LINE CIRCUITS SERVING TWO OR THREE MARKER GROUPS IN THE SAME BUILDING

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
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(A) Seizure - Terminating Call

Call from First Preferred No. 5 Crossbar Marker Group

- |   |   |
|---|---|
| 1 | At master test frame of the first preferred No. 5 crossbar marker group - Restore all keys. |
| 2 | Operate RL key momentarily.   |

All lamps extinguished.

Apparatus	Required for Tests						
	(A) (H) (K)	(B) (F) (J)	(C) (I) (M)	(L)	(D)	(E)	(G)(N)

Master Test Control Circuit (2.02)	1	-	-	1	-	-	
Handset (2.03)	1	1	-	-	-	-	
Test Receiver (2.04)	-	-	1	-	1	-	
Testing Cord (2.05)	-	-	-	-	-	-	1
Testing Cord (2.06)	-	-	-	-	1	-	
2.02 Master Test Control Circuit (SD-25800-01).							
2.03 No. 1011G Handset equipped with a No. 2W41A Cord Assembly consisting of a W2CJ Cord, a No. 471A Jack, a No. 360A Tool, a No. 360B Tool and two 419A or two 624B Tools, as required (used to monitor on tip and ring of circuit under test).							
2.04 Test Receiver - No. 716C Receiver attached to a W2AB Cord, equipped with two No. 360A Tools (2W21A Cord), a KS-6278 Connecting Clip and a No. 411A Tool (used for checking for the presence of ground).							
2.05 Testing Cord - No. 893 Cord, 6 feet long, equipped with two No. 360A Tools (1W13B Cord) and one KS-6278 Connecting Clip and one No. 419A or 624B Tool as required (used to connect ground to a punching of a terminal strip).							
2.06 Testing Cord - No. 893 Cord, 6 feet long, equipped with two No. 360A Tools (1W13B Cord), one KS-6278 Connecting Clip and one No. 419A Tool (used to connect ground to a relay contact spring).							

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
3	Operate IC (OA or OAT), or IC (OAT) and E, MT- (to select a special marker), T, LT keys.	
4	Operate A-, B-, C-, D- keys for number assigned to auxiliary line circuit in office A.	
5	Operate switch on handset to MON.	
6	At relay rack frame - Connect handset to - <u>227-type terminal strip where provided,</u> punchings 1 and 2. <u>D-type terminal strip where provided,</u> punchings 47 and 37.	
7	At master test frame - Operate ST key momentarily.	LT, MRL lamps lighted. S lamp lighted at voltmeter test panel.
8	At relay rack frame - Operate switch of handset to TALK.	S lamp extinguished. At relay rack frame - NB1 and, if provided, NB2 relays operated.
9	Disconnect handset.	S lamp lighted.
10	At master test frame - Operate RL key momentarily.	All lamps extinguished.
11a	If the auxiliary line circuit serves of- fice B of the first No. 5 crossbar marker group - Operate IC (OB or OBT) or IC (OBT) and E key.	
12a	Operate A-, B-, C-, D- keys for number assigned to auxiliary line circuit in office B.	
13a	Repeat Steps 5 to 10 inclusive.	
<u>Call from Second Preferred No. 5 Crossbar Marker Group</u>		
14	Using the master test frame of the second preferred No. 5 crossbar marker group - Repeat Steps 1 to 10 inclusive.	
15b	If the auxiliary line circuit serves of- fice B of the second preferred No. 5 crossbar marker group - Operate IC (OB or OBT) or IC (OBT) and E key.	
16b	Operate A-, B-, C-, D- keys for number assigned to auxiliary line circuit in office B.	
17b	Repeat Steps 5 to 10 inclusive.	

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>Call from Third Preferred No. 5 Crossbar Marker Group</u>		
18	Using the master test frame of third preferred No. 5 crossbar marker group - Repeat Steps 1 to 10 inclusive.	
→ 19c	If the auxiliary line circuit serves office B of the third preferred No. 5 crossbar marker group - Operate IC (OB or OBT) or IC (OBT) and E key.	
20c	Operate A-, B-, C-, D- keys for number assigned to auxiliary line circuit in office B.	
21c	Repeat Steps 5 to 10 inclusive.	
<u>Call from Second Preferred No. 1 Crossbar Marker Group</u>		
22	At relay rack frame - Operate switch on handset to MON.	
→ 23	Connect handset to - <u>227-type terminal strip where provided, punchings 1 and 2.</u> <u>D-type terminal strip where provided, punchings 47 and 37.</u>	
24	At outgoing trunk test frame in the second preferred No. 1 crossbar marker group - Make a line test call to the auxiliary line circuit being tested using the number assigned to this line in office A of this marker group.	
25	When it is determined that the circuit being tested has been seized by the call from the outgoing trunk test frame - At relay rack frame - Operate switch of handset to TALK	Conversation is easily understood.
26d	If the auxiliary line circuit serves office B of the second preferred No. 1 crossbar marker group - At outgoing trunk test frame in the second preferred No. 1 crossbar marker group - Disconnect and make a line test call to the auxiliary line circuit being tested using the number assigned to this line in office B of this marker group.	
27d	At relay rack frame - After test call from office A has been disconnected - Operate switch of handset to MON.	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
28d	When it is determined that the circuit being tested has been seized by the call from the outgoing trunk test frame - At relay rack frame - Operate switch of handset to TALK.	Conversation is easily understood.
29	At outgoing trunk test frame - Disconnect.	
30	At relay rack frame - Disconnect handset from terminal strip on unit.	
<u>Call from Third Preferred No. 1 Crossbar Marker Group</u>		
31	At relay rack frame - Operate switch on handset to MON.	
32	Connect handset to - <u>227-type terminal strip where provided,</u> punchings 1 and 2. <u>D-type terminal strip where provided,</u> punchings 47 and 37.	
33	At outgoing trunk test frame in the third preferred No. 1 crossbar marker group - Make a line test call to the auxiliary line circuit being tested using the number assigned to this line in office A of this marker group.	
34	When it is determined that the circuit being tested has been seized by the call from the outgoing trunk test frame - At relay rack frame - Operate switch of handset to TALK.	Conversation is easily understood.
35e	If the auxiliary line circuit serves office B of the third preferred No. 1 crossbar marker group - At outgoing trunk test frame in the third preferred No. 1 crossbar marker group - Disconnect and make a line test call to the auxiliary line circuit being tested using the number assigned to this line in office B of this marker group.	
36e	At relay rack frame - After test call from office A has been disconnected - Operate switch of handset to MON.	
37e	When it is determined that the circuit being tested has been seized by the call from the outgoing trunk test frame - At relay rack frame - Operate switch of handset to TALK.	Conversation is easily understood.

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
38	At outgoing trunk test frame - Disconnect.	
39	At relay rack frame - Disconnect handset from terminal strip on unit.	
<u>(B) Seizure - Originating Call - Auxiliary Line Circuit Arranged for 2-Way Operation</u>		
1	Operate switch of handset to MON.	
→ 2	At relay rack frame - Connect handset to - <u>227-type terminal strip where provided,</u> punchings 1 and 2. <u>D-type terminal strip where provided,</u> punchings 47 and 37.	
3	When line is idle - Operate switch of handset to TALK.	Dial tone heard. C1, NBL, and, if provided, NB2 relays operated.
4	Disconnect handset.	C1, NBL, released, if provided, NB2 relay released.

(C) Busy Indication

→ 1	At relay rack frame - When the circuit to be tested is normal - Block NBL, and, if provided NB2 relays operated.	<u>227-type terminal strip where provided,</u> ground on punchings 8, 12, and, if NB2 relay is provided, 16. <u>D-type terminal strip, where provided,</u> ground on punchings 17, 46, and, if NB2 relay is provided, 45.
2	Remove the blocking tools from the NBL, and if provided, NB2 relays.	

(D) Simultaneous Seizure - Delayed Completion on Call from  
First Preferred No. 5 Crossbar Marker Group

1	At master test frame of the first pre- ferred No. 5 crossbar marker group - Restore all keys.	
2	Operate RL key momentarily.	All lamps extinguished.
→ 3	Operate IC (OA or OAT), or IC (OAT) and E, MT- (to select a special marker), G, VMT1, LT keys.	
4	Operate A-, B-, C-, D- keys for number assigned to auxiliary line in office A.	
5	At relay rack frame - When circuit to be tested is normal - Block NBL, and, if provided, NB2 relays operated.	
6	Block C2 relay operated and C1 relay nonoperated.	

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
7	At master test frame - Operate ST key momentarily.	LT, MRL lamps lighted. BY lamp not lighted. S lamp lighted at voltmeter test panel.
8	Operate T1 REV key.	Momentary voltmeter reading of at least 10 volts.
9	Restore T1 REV key.	Momentary voltmeter reading of at least 10 volts.
10	Operate RL key momentarily.	All lamps extinguished.
11	At relay rack frame - Remove blocking tool from C2 relay.	
12a	If the C3 relay is provided - Block C3 relay operated.	
13a	At master test frame - Operate ST key momentarily.	LT, MRL lamps lighted. BY lamp not lighted. S lamp lighted at voltmeter test panel.
14a	Operate T1 REV key.	Momentary voltmeter reading of at least 10 volts.
15a	Restore T1 REV key.	Momentary voltmeter reading of at least 10 volts.
16a	Operate RL key momentarily.	All lamps extinguished.
17a	At relay rack frame - Remove blocking tool from C3 relay.	
18	Remove blocking tool from C1 relay.	
19	Remove blocking tools from NB1, and if provided, NB2 relays.	
20	At master test frame - Restore G, VMT1 keys.	

(E) Simultaneous Seizure - Denied Completion of Calls from Less Preferred Marker Groups

1	At relay rack frame - When circuit to be tested is normal - Block NB1 and, if provided, NB2 relay operated.	
2	Connect ground to 3B of C2 relay.	
3	Block C2 relay operated.	No ground on 7T of C2 relay.
4	Block C1 relay operated.	Ground on 7T of C2 relay.
5	Remove ground from C2 relay.	
6	Remove blocking tools from C1 and C2 relays.	
7a	If C3 relay is provided - Connect ground to 3B of C3 relay.	

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
8a	Block C3 relay operated.	No ground on 7T of C3 relay.
9a	Block C1 relay operated.	Ground on 7T of C3 relay.
10a	Remove blocking tool from C1 relay.	
11a	Block C2 relay operated.	Ground on 7T of C3 relay.
12a	Remove blocking tools from C2 and C3 relays.	
13a	Remove ground from C3 relay.	
14	Remove blocking tools from NBl and, if provided, NB2 relays.	

(F) Busy - Called Party Fails to Disconnect - Auxiliary Line Circuit Arranged for Terminating Service Only

1	Operate switch of handset to MON.	
→ 2	At relay rack frame - Connect handset to - <u>227-type terminal strip where provided,</u> punchings 1 and 2. <u>D-type terminal strip where provided,</u> punchings 47 and 37.	
3	When line is idle - Operate switch of handset to TALK.	H, NBl, and if provided, NB2 relays operated.
4	Disconnect handset.	H, NBl, and if provided, NB2 relays released.

(G) Incoming Busy - Incoming Busy Circuit Provided

1	At relay rack frame - Where circuit to be tested is normal - Block IB relay nonoperated.	
→ 2	Connect ground to - <u>227-type terminal strip where provided,</u> punching 3. <u>D-type terminal strip where provided,</u> punching 27.	
3	Manually operate NBl relay.	NBl relay holds. NB2 relay, if provided, operated.
→ 4	Momentarily remove ground from punching 3 or 27.	NBl, and if provided, NB2 relays released.
5	Remove blocking tool from IB relay.	IB, NBl, and if provided, NB2 relays operated.
→ 6	Remove ground from punching 3 or 27.	IB, NBl, and if provided, NB2 relays released.

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>AUXILIARY LINE CIRCUITS SERVING OFFICE A AND OFFICE B OF A SINGLE MARKER GROUP - 2-WAY SERVICE</u>		
<u>(H) Seizure - Terminating Call</u>		
1	At master test frame - Restore all keys.	
2	Operate RL key momentarily.	All lamps extinguished.
3	Operate IC (OA or OAT), or IC (OAT) and E, MT- (to select a special marker), T, LT keys.	←
4	Operate A-, B-, C-, D- keys for number assigned to auxiliary line circuit in office A.	
5	At relay rack frame - Operate switch of handset to MON.	
6	Connect handset to punchings of the 2-circuit terminal strip on unit as follows: <u>227-type terminal strip where provided,</u> if testing circuit 1 - punchings 5 and 6. if testing circuit 2 - punchings 13 and 14. <u>D-type terminal strip where provided,</u> if testing circuit 1 - punchings 47 and 37. if testing circuit 2 - punchings 45 and 35.	←
7	At master test frame - Operate ST key momentarily.	LT, MRL lamps lighted. S lamp lighted at voltmeter test panel.
8	At relay rack frame - Operate switch of handset to TALK.	S lamp extinguished. At relay rack frame - CT relay operated.
9	Operate switch of handset to MON.	S lamp lighted.
10	At master test frame - Operate RL key momentarily.	All lamps extinguished.
11	Operate IC (OB or OBT) or IC (OBT) and E key.	←
12	Operate A-, B-, C-, D- keys for number assigned to auxiliary line circuit in office B.	
13	Operate ST key momentarily.	LT, MRL lamps lighted. S lamp lighted at voltmeter test panel.
14	At relay rack frame - Operate switch of handset to TALK.	S lamp extinguished. At relay rack frame - CT relay operated.
15	Disconnect handset.	S lamp lighted.
16	At master test frame - Operate RL key momentarily.	All lamps extinguished.

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STEP

ACTION

VERIFICATION

(I) Busy Indication

- 1 At relay rack frame -  
When circuit under test is normal  
Block CT relay operated.
- 2 Insulate 1B of IA relay.
- 3 Block IA relay operated.
- 4 Remove blocking tool from CT relay
- 5 Remove blocking tool and then insulator  
from IA relay.
- Ground on punching of the 2-circuit terminal strip on unit as follows:  
227-type terminal strip where provided,  
if testing circuit 1 - punching 4.  
if testing circuit 2 - punching 12.  
D-type terminal strip where provided,  
if testing circuit 1 - punching 17.  
if testing circuit 2 - punching 15.
- CT relay releases.  
Ground on punching of the 2-circuit terminal strip on unit as follows:  
227-type terminal strip where provided,  
if testing circuit 1 - punching 4.  
if testing circuit 2 - punching 12.  
D-type terminal strip where provided,  
if testing circuit 1 - punching 17.  
if testing circuit 2 - punching 15.

(J) Seizure - Originating Call

- 1 Operate switch of handset to MON.
- 2 At relay rack frame -  
Connect handset to punchings of the 2-circuit terminal strip on unit as follows:  
227-type terminal strip where provided,  
if testing circuit 1 - punchings 5 and 6.  
if testing circuit 2 - punchings 13 and 14.  
D-type terminal strip where provided,  
if testing circuit 1 - punchings 47 and 37.  
if testing circuit 2 - punchings 45 and 35.
- 3 When line is idle -  
Operate switch of handset to TALK.
- 4 Disconnect handset.
- Dial tone heard.

AUXILIARY LINE CIRCUITS SERVING OFFICE A AND OFFICE B OF A SINGLE MARKER GROUP - TERMINATING SERVICE ONLY

(K) Seizure

- 1 At master test frame -  
Restore all keys.
- 2 Operate RL key momentarily.
- All lamps extinguished.

<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
3	Operate IC (OA or OAT), or IC (OAT) and E, MT- (to select a special marker) T, LT keys.	←
4	Operate A-, B-, C-, D- keys for number assigned to auxiliary line circuit in office A.	
5	At relay rack frame - Operate switch of handset to MON.	
6	Connect handset to punchings of the 2-circuit terminal strip on unit as follows: <u>227-type terminal strip where provided,</u> if testing circuit 1 - punchings 1 and 2. if testing circuit 2 - punchings 9 and 10. <u>D-type terminal strip where provided,</u> if testing circuit 1 - punchings 38 and 28. if testing circuit 2 - punchings 36 and 26.	←
7	At master test frame - Operate ST key momentarily.	LT, MRL lamp lighted. S lamp lighted at voltmeter test panel. At relay rack frame - CO and, if provided, D relays operated.
8	At relay rack frame - Operate switch of handset to TALK.	S lamp extinguished.
9	Operate switch of handset to MON.	S lamp lighted.
10	At master test frame - Operate RL key momentarily.	All lamps extinguished.
11	Operate IC (OB or OBT) or IC (OBT) and E key.	←
12	Operate A-, B-, C-, D- keys for number assigned to auxiliary line circuit in office B.	
13	Operate ST key momentarily.	LT, MRL lamp lighted. S lamp lighted at voltmeter test panel. At relay rack frame - CO, and, if provided, D relays operated.
14	At relay rack frame - Operate switch of handset to TALK.	S lamp extinguished.
15	Disconnect handset.	S lamp lighted.
16	Operate RL key momentarily.	All lamps extinguished.

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<u>STEP</u>	<u>ACTION</u>	<u>VERIFICATION</u>
<u>(L) Busy Indications</u>		
→ 1	At relay rack frame - When circuit under test is normal - Block A relay operated.	Ground on punching of the 2-circuit terminal strip on unit as follows: <u>227-type terminal strip where provided,</u> if testing circuit 1 - punching 4. if testing circuit 2 - punching 12. <u>D-type terminal strip where provided,</u> if testing circuit 1 - punching 17. if testing circuit 2 - punching 15.
2	Block operated CO relay.	
→ 3	Remove blocking tool from A relay.	A relay released. Ground on punching of the 2-circuit terminal strip on unit as follows: <u>227-type terminal strip where provided,</u> if testing circuit 1 - punching 4. if testing circuit 2 - punching 12. <u>D-type terminal strip where provided,</u> if testing circuit 1 - punching 17. if testing circuit 2 - punching 15.
4	Remove blocking tool from CO relay.	

(M) Busy - Called Party Fails to Disconnect

1	Operate switch of handset to MON.	
→ 2	At relay rack frame - Connect handset to punchings of the 2-circuit terminal strip on unit as follows: <u>227-type terminal strip where provided,</u> if testing circuit 1 - punchings 1 and 2. if testing circuit 2 - punchings 9 and 10. <u>D-type terminal strip where provided,</u> if testing circuit 1 - punchings 38 and 28. if testing circuit 2 - punchings 36 and 26.	
3	When line is idle - Operate switch of handset to TALK.	A relay operated.
4	Disconnect handset.	A relay released.

(N) Incoming Busy from "B" Service Assistant Circuit

→ 1	At relay rack frame - When circuit to be tested is normal Ground the punching of 2-circuit terminal strip as follows: <u>227-type terminal strip where provided,</u> if testing circuit 1 - punching 5. if testing circuit 2 - punching 13. <u>D-type terminal strip where provided,</u> if testing circuit 1 - punching 27. if testing circuit 2 - punching 17.	B and D relays operated.
2	Remove ground from terminal strip.	B and D relays released.