

## LINE LOAD CONTROL TESTS NO. 1 CROSSBAR OFFICES

### 1. GENERAL

**1.01** This section describes a method of testing line load control equipment in No. 1 crossbar offices.

**1.02** This section is reissued for the following reasons:

- (a) To remove former Test C which is now combined with Test A.
- (b) To change the title of Test B.
- (c) To add a new Test C to check the lamp circuits which indicate line group overload conditions.
- (d) To include a check of the control of line load from a shelter area.
- (e) To change the over-all test method and format of the section.

Since this reissue covers a general revision, the arrows ordinarily used to indicate changes have been omitted.

**1.03** The tests covered are:

**A. Common Control and Alarm Equipment:**

This test checks the ability of the line load control circuit to sound the major alarm, to light the proper indicating lamps, and to control line load from the equipment room and from a shelter area.

**B. Individual Frame Check for Denial of Originating Service:**

This test checks that the B and/or C class subscribers are denied originating service when the load control feature is made operative.

**C. Line Group Overload:** This test checks that a line group overload lamp flashes while a dial tone delay condition exists in the associated line link frame.

**1.04** The lines of an office arranged for line load control are divided into three categories which are known as class A, class B, and class C. The A lines include all lines which are considered essential to national defense and public welfare during an emergency. B and C lines include all other lines. Where the number of essential lines is less than 10 per cent, some nonessential lines may be included with the A lines. (Coin lines are usually included with class A lines, both because of the importance of having some telephone service available to the general public during emergencies and also because of the difficulty of properly disposing of coins in the hopper of the coin box at the time line load control is applied.) Approximately 10 per cent of the lines associated with a given line link frame are assigned to class A. The remaining 90 per cent are usually divided approximately equally between classes B and C. The B and C subdivisions are made only for control reasons and the designations do not have any significance in so far as the relative importance of the lines in these classifications is concerned. The tests covered herein do not in any way affect the service from class A lines.

**1.05** The line load control equipment provides facilities for denying originating service to as much as 90 per cent of the lines in an office. It is therefore extremely important that every safeguard should be employed to guard against operations resulting in denial of service during test. In some cases, the tests described herein deny service for a few seconds. In order to avoid denying service beyond this time the following should be observed:

- (a) Tests should be made only when specific authorization is obtained in accordance with local instructions.
- (b) Care must be taken that trouble clearing activities do not introduce hazards of denying service.

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(c) Alarm facilities are provided to detect cases where crossed or grounded leads result in denying service on a group of lines. If trouble of this nature develops, measures should be taken to restore the affected lines to service immediately.

(d) If it is desired to discontinue testing at any time, even temporarily, restore all line load control equipment to normal and remove all relay blocking tools.

(e) The cautions which appear in the test procedures should be given special attention.

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

**1.07** The performance of Test C will result in line link controller delay (dial tone delay) registrations.

**1.08** The line load control jack, key, and lamp equipment may be located on the incoming trunk test frame or in a control cabinet (wall cabinet), and the associated relay equipment may be located at the incoming trunk test frame or at the relay rack frame. In the method, the testing locations are referred to as (1) at key and lamp equipment, or (2) at relay equipment.

**1.09** In performing these tests, action and/or verification is required at the following locations.

(a) **Test A:** Incoming trunk test frame or control cabinet, relay rack frame, and control cabinet at shelter area where provided.

(b) **Tests B and C:** Incoming trunk test frame or control cabinet and line link frame.

**1.10** Office records or wiring list should be consulted to determine the class B and class C horizontal line groups controlled by the respective B- and C- relays for each line link frame.

**1.11 Lettered 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

### Tests A, B, and C

**2.01** Blocking Tools as required

### Tests B and C

**2.02** No. 1011G Handset (Dial Hand Test Set) equipped with a 3W8A Cord Assembly consisting of a 3WAA Cord, a 471A Jack, a 351A Plug, and a KS-8010 Switch.

### Test C

**2.03** Eight No. 349A (Make-Busy) Plugs

**3. METHOD**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
<b>A. Common Control and Alarm Equipment</b>		
1	At key and lamp equipment — Make sure all frame and common control keys are normal	All lamps extinguished
2	At relay equipment — Block nonoperated HB relay	
3	At key and lamp equipment — Operate CLB key	CLB lamp lighted
4	Restore CLB key	CLB lamp extinguished
5	At relay equipment — Block operated AB relay	At key and lamp equipment — CLB lamp lighted Major alarm sounds Associated aisle pilot lamp lighted
6	At relay equipment — Remove blocking tool from AB relay	At key and lamp equipment — CLB lamp extinguished Major alarm silenced Associated aisle pilot lamp extinguished
7	At relay equipment — Remove blocking tool from HB relay	
8	Block operated HB relay	At key and lamp equipment — CLB lamp lighted
9	At relay equipment — Remove blocking tool from HB relay	At key and lamp equipment — CLB lamp extinguished
10	Repeat Steps 2 through 9 using the CLC key and the HC and AC relays	Verification same as Steps 2 through 9, substituting CLC for CLB lamp
11	At key and lamp equipment — Operate CLB key	CLB lamp lighted Major alarm sounds Aisle pilot lamp lighted
12	Momentarily operate AR key	Major alarm silenced Aisle pilot lamp extinguished
13	Restore CLB key	CLB lamp extinguished
14	Operate CLC key	CLC lamp lighted Major alarm sounds Aisle pilot lamp lighted

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STEP	ACTION	VERIFICATION
15	Momentarily operate AR key	Major alarm silenced Aisle pilot lamp extinguished
16	Restore CLC key	CLC lamp extinguished
17a	If line load control from a shelter area is provided — At shelter area control cabinet — Operate CLB key	At shelter area control cabinet — CLB lamp lighted At key and lamp equipment in equipment room — CLB lamp lighted Major alarm sounds Aisle pilot lamp lighted
18a	At shelter area control cabinet — Momentarily operate AR key	At key and lamp equipment in equipment room — Major alarm silenced Aisle pilot lamp extinguished
19a	At shelter area control cabinet — Restore CLB key	CLB lamp at each location extinguished
20a	Repeat Steps 17a through 19a using CLC key	Verification same as Steps 17a through 19a substituting CLC for CLB lamp
21	At key and lamp equipment — Operate CLB key	CLB lamp lighted Major alarm sounds Aisle pilot lamp lighted
22	Momentarily operate AR key	Major alarm silenced Aisle pilot lamp extinguished
	<b><i>Caution: Originating service will be denied on lines associated with an operated B or C (individual) frame key. For this reason, the action covered in Steps 23 through 44 should be completed as rapidly as possible (see 1.05).</i></b>	
23	Operate (pull out) one B key	Associated B lamp lighted
24	Restore CLB key	CLB lamp remains lighted B lamp of Step 23 remains lighted
25	Restore (push in) B key	Associated B lamp extinguished CLB lamp extinguished
26	Operate CLB key	CLB lamp lighted Major alarm sounds Aisle pilot lamp lighted
27	Momentarily operate AR key	Major alarm silenced Aisle pilot lamp extinguished

STEP	ACTION	VERIFICATION
28	Operate another B key	Associated B lamp lighted
29	Restore CLB key	CLB lamp remains lighted B lamp of Step 28 remains lighted
30	Operate another B key and then restore the previously operated B key	Associated B lamp lighted B lamp of previously operated B key extinguished
31	Repeat Step 30 until all B keys and lamps have been checked	
32	Restore last operated B key	Associated B lamp extinguished CLB lamp extinguished
33	Operate CLC key	CLC lamp lighted Major alarm sounds Aisle pilot lamp lighted
34	Momentarily operate AR key	Major alarm silenced Aisle pilot lamp extinguished
35	Operate one C key	Associated C lamp lighted
36	Restore CLC key	CLC lamp remains lighted C lamp of Step 35 remains lighted
37	Restore C key	Associated C lamp extinguished CLC lamp extinguished
38	Operate CLC key	CLC lamp lighted Major alarm sounds Aisle pilot lamp lighted
39	Momentarily operate AR key	Major alarm silenced Aisle pilot lamp extinguished
40	Operate another C key	Associated C lamp lighted
41	Restore CLC key	CLC lamp remains lighted C lamp of Step 40 remains lighted
42	Operate another C key and then restore the previously operated C key	Associated C lamp lighted C lamp of previously operated C key extinguished
43	Repeat Step 42 until all C keys and lamps have been checked	
44	Restore last operated C key	Associated C lamp extinguished CLC lamp extinguished

STEP	ACTION	VERIFICATION
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**B. Individual Frame Check for Denial of Originating Service**

- 1 Obtain a list of the horizontal line groups controlled by the respective B- and C- relays for each line link frame (See 1.10)

*Note:* The number stamped on the B- or C-relay represents the vertical column on the line link frame in which the class B or class C lines controlled by that relay are located.

*Caution:* *Originating service will be denied on lines associated with an operated B- or C-relay. The steps which follow should be made as rapidly as possible (see 1.05).*

**Class B Lines**

- |    |   |   |
|----|---|---|
| 2  | At line link frame —<br>Block nonoperated all except one B- relay (B- relay to be tested)   |   |
| 3  | Connect handset with key operated to MON position to an idle line in a subgroup of lines whose ST lead is controlled by the B- relay to be tested     |   |
| 4  | Block operated B- relay under test  | Major alarm sounds                      |
| 5  | Operate key on handset to TALK position   | Dial tone not heard                     |
| 6  | Remove blocking tool from B- relay under test   | Dial tone heard<br>Major alarm silenced |
| 7  | Connect handset with key operated to MON position to an idle line in another subgroup of lines whose ST lead is controlled by the B- relay under test |   |
| 8  | Repeat Steps 4 through 6  |   |
| 9  | Repeat Steps 7 and 8 until a test has been made from an idle line in each subgroup of lines associated with the B- relay under test                   |   |
| 10 | Block nonoperated B- relay just tested  |   |
| 11 | Repeat Steps 3 through 9 for each remaining B- relay to be checked  |   |
| 12 | Disconnect handset  |   |
| 13 | Remove blocking tools from all B- relays  |   |

**Class C Lines**

STEP	ACTION	VERIFICATION
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14	Proceed as in Steps 1 through 13 using the C- relays	
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**C. Line Group Overload**

*Caution: Originating service will be denied on lines associated with this line link frame. For this reason, the ACTION covered in Steps 1 through 4 should be completed as rapidly as possible (see 1.05).*

1	At line link frame — Insert No. 349A plugs into SS0 to SS7 jacks, inclusive, and block nonoperated G-8 and G-9 relays	
2	Connect handset with key operated to TALK position to an idle line	At key and lamp equipment — The line group overload (G) lamp associated with line link frame under test flashes within 1.5 to 2 seconds and continues to flash as long as test call connection is held
3	At line link frame — Remove make-busy plugs from SS- jacks and remove blocking tools from G- relays	Dial tone heard
4	Disconnect handset	
5	Repeat Steps 1 through 4 on each line link frame equipped with line load control	

