

## LINE AND TRUNK FINDER GROUP AND CHAIN CIRCUIT

### MISCELLANEOUS TESTS

### STEP-BY-STEP SYSTEMS

#### 1. GENERAL

**1.01** This section describes a method of making a test of the start lead of each finder in 4-, 6-, 8-, 10-, 16-, 20-, and 30-finder groups. It includes a test of the multiple chain circuit and a noise test for wipers bridging between adjacent terminals. The tests are intended for use in step-by-step offices. They are also for use in community dial offices which have line finders other than those arranged for use with a line finder control circuit.

**1.02** This section is reissued to add a reference to multiplying two trunk finders groups to the same outgoing trunk group. This reissue does not affect the Equipment Test List.

**1.03** Means are provided on an optional basis for testing the line finder for clicks and noise caused by worn or improperly adjusted wipers bridging between terminals, and other mechanical defects associated with the rotary action of the line finder, using the 1014A dial hand test set.

**1.04** When performing these tests, service to certain lines or trunks may be delayed or denied. This is particularly true of 4-finder groups, since lines or trunks on all levels above the first will be denied service during test.

**1.05** *Lettered Steps:* A letter a, b, c, etc, added to a step number in Parts 3 or 4 of this section indicates an action which may or may not be required, depending upon local conditions. The conditions 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 designed 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** 1014A handset (dial hand test set), equipped with cord assembly described in 2.02 or 2.03.

**2.02** W2DB cord, 4 feet long, equipped with a 471A jack and two KS-6780 connecting clips with two 108 cord tips (2W37A cord) (for connecting the handset to the tip and ring of the subscriber line at the bank multiple terminal strip, when this strip is equipped with soldered connections).

**2.03** W2CJ cord, 4 feet long, equipped with a 471A jack, 360A and 360B tools, and two 411A tools (2W41A cord). Replace the 411A tools with two 624B tools (for connecting the handset to the tip and ring of a subscriber line at the bank multiple terminal strip, when this strip is equipped with solderless wrapped connections).

#### 3. PREPARATION

STEP	ACTION	VERIFICATION
1a	If making this test in office arranged for extending alarms to another office— Notify proper person in other office to disregard alarms until further notice.	
2a	Operate LO key associated with alarm equipment, so that local alarm signals will operate.	LO (red) lamp lighted.

**Note:** To guard against denying service to the first choice lines or trunks in the second

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
	subgroup, do not start the test if all the home finders in the second subgroup (shown in Table A as cutting in on level 10 in a 30-, 20-, 16-, 10-, or 6-switch group, or level 5 in a 8-switch group) are busy, or made busy. While performing the test, if all of the home finders in the second subgroup become busy, stop the test until at least one of the home finders becomes idle.	
3b	If making wiper noise test (1.03)— Operate handset switch to MON.	
4b	At bank multiple terminal strip connect handset to tip and ring of subscriber line (upper hundreds), which is located between terminals 3 and 7 of level upon which line finder will rotate.	
5b	Operate handset switch to TALK and slide to locking position.	Dial tone heard.
6b	Dial digit to cut through.	Dial tone removed.

**4. METHOD**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
<b><i>Test of Group and Chain Circuit in Offices Not Arranged for Split Alarm (Major Alarm Only)</i></b>		
7	Operate finder test key TST.  <b>Note:</b> Should a subscriber originate a call while TST key is operated, the test may be interrupted momentarily while a finder hunts for the calling line, but after the line is seized, operation of the remaining finders will continue. Seizure of a line is indicated by the finder stopping and being held on a terminal while other idle finders continue to operate and release in proper order.	Each idle line finder beginning with No. 1 or 11 steps vertically to proper level, cuts in, rotates to last rotary step, releases in order indicated in Table A.  <b>Note 1:</b> If the start lead alternating arrangement is provided, the first switch in any subgroup may not necessarily operate as this depends on which start lead was used last. At least two test cycles will be required to test first and second choice finders in each subgroup.  <b>Note 2:</b> If two trunk finder groups are multiplied to the same group of outgoing trunks and idle trunk finder in group A cannot be seized if its paired trunk finder in group B is busy and vice versa.
8b	If making wiper noise test (1.03)— Listen for clicks or noises in handset receiver	No clicks or noises heard.

**TABLE A**  
**SEQUENCE OF OPERATION**

200-, 100-, AND 50-POINT FINDERS							
LEVEL CUT IN	CAPACITY OF UNIT*						
	30 SW	20 SW	16 SW	10 SW	8 SW	6 SW	4 SW
1	1 11 21	1 11	1 11	1	1 6	1	1 to 4
2	10 20 30	10 20	10	10	5	—	—
3	9 19 29	9 19	9	9	4	—	—
4	8 18 28	8 18	8	8	3 8	—	—
5	7 17 27	7 17	7	7	2 7	—	—
6	6 16 26	6 16	6 16	6	—	6	—
7	5 15 25	5 15	5 15	5	—	5	—
8	4 14 24	4 14	4 14	4	—	4	—
9	3 13 23	3 13	3 13	3	—	3	—
10	2 12 22	2 12	2 12	2	—	2	—

\*Partially equipped frames may be encountered in some offices. Switches may be omitted when traffic requires less than full capacity of switches. In such cases switches are cut back by sets of two as follows:  
 20-finder units—20-15, 18-13, 17-12, 19-14, 16-11, 10-5, 8-3, 7-2, 9-4, and 6-1.  
 30-finder units—30-25, 28-23, 27-22, 29-24, 26-21 then as in the 20-finder unit above.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
	as each switch rotates past terminals of line used for test.	
9	After last finder in group operates— First finder in group reoperates.	CB or C BLK lamp lighted. Audible alarm sounds.  <i>Note:</i> The time required to operate all the finders may be less than the time required to bring in the alarm. In this case, leave the TST key operated long enough to cause the alarm to come in.
10	Restore TST key to normal.	CB or C BLK lamp extinguished. Audible alarm silenced.
11c	If alarm circuit is arranged to lock in alarm— Operate AR key associated with finder group.	CB or C BLK lamp extinguished. Audible alarm silenced.
12b	If making wiper noise test (1.03)— Disconnect handset from line terminals.	
13b	At bank multiple terminal strip connect handset to tip and ring of subscriber line (lower hundreds), which is located between terminals 3 and 7 of level upon which line finder will rotate. A different switch should be used to allow the previously used switch to be tested.	
14b	Operate handset switch to TALK and slide to locking position.	Dial tone heard.
15b	Dial digit to cut through.	Dial tone removed.
16b	Operate finder test key TST.	Each idle line finder beginning with No. 1 or 11 steps vertically to proper level, cuts in, rotates to last rotary step, releases in order indicated in Table A. See notes 1 and 2, Step 7.
17b	Listen for clicks or noises in handset receiver as each switch rotates past terminals of line used for test.	No clicks or noises heard.
18b	Disconnect handset from line.	
19b	Restore TST key to normal.	Line finders cease test operation.
<i>Test of Group and Chain Circuit in Offices Arranged for Split (Major or Minor) Alarms</i>		Each idle finder beginning with No. 1 or 11 steps vertically to proper level, cuts in, rotates to last rotary step, and releases in order indicated in Table A.
20	Operate finder start key TST.	After last idle finder has operated and released—
	<i>Note:</i> Should a subscriber originate a call	

STEP	ACTION	VERIFICATION
	while TST key is operated, the test may be interrupted momentarily while a finder hunts for the calling line, but after the line is seized operation of the remaining finder will continue. Seizure of a line is indicated by the finder stopping and being held on a terminal while other idle finders continue to operate and release in proper order.	All idle finders again operate and release in turn, and cycle continues.  <i>Note:</i> If the start lead alternating arrangement is provided, the first switch in any subgroup may not necessarily operate as this depends on which start lead was used last. At least two test cycles will be required to test first and second choice finders in each subgroup.  <i>Note:</i> If two trunk finder groups are multipled to the same group of outgoing trunks an idle trunk finder in group A cannot be seized if its paired trunk finder in group B is busy and vice versa.
21b	If making wiper noise test (1.03)— Listen for clicks or noises in handset receiver as each switch rotates past terminals of line used in test.	No clicks or noises heard.
22	Restore TST key to normal.	Line finders cease test operation.
23b	If making wiper noise test (1.03)— Disconnect handset from line terminals.	
24b	At bank multiple terminal strip connect handset to tip and ring of subscriber line (lower hundreds), which is located between terminals 3 and 7 of level upon which line finder will rotate. A different switch should be used to allow the previously used switch to be tested.	
25b	Operate handset switch to TALK and slide to locking position.	Dial tone heard.
26b	Dial digit to cut through.	Dial tone removed.
27b	Operate finder test key TST.	Each idle line finder beginning with No. 1 or 11 steps vertically to proper level, cuts in, rotates to last rotary step, releases in order indicated in Table A. See notes 1 and 2, Step 20.
28b	Listen for clicks or noises in handset receiver as each switch rotates past terminals of line used for test.	No clicks or noises heard.
29b	Disconnect handset from line.	
30b	Restore TST key to normal.	Line finders cease test operation.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
<b>All Circuits</b>		
31	If making this test in office arranged for extending alarms to another office— Notify proper person in other office that test has been completed.	
32	Restore LO key to normal.	LO lamps extinguished.