



Operating Routines

CONTINUITY AND POLARITY TEST

Linefinder Equipment  
(G. T. Co., EE-SC-9812, Test Set)

**1. GENERAL**

1.01 This Practice describes a procedure for the performance of continuity and polarity tests on linefinder lines and trunks. The tests are performed using the linefinder continuity test set (circuit EE-SC-9812).

1.02 The test is known as:

A. Line and Trunk Continuity and Polarity Test on Linefinder Equipment

1.03 The test is performed on linefinder circuits H-38938, H-41921, H-75311, H-75315, H-75450, H-75463 and similar.

Orientation

1.04 All tests should be performed during hours of light traffic.

1.05 The tests are made from the subscribers' line terminals on the linefinder board terminal block. These terminals are located at the incoming side of the line and cut-off relay equipment. The equipment may be tested from other points. However, the above location is recommended in order that close visual inspection of the equipment can be made during the tests.

1.06 The line under test is extended thru to a selector. In this way the continuity and polarity of both the line and trunk is tested.

1.07 In a 200 line linefinder board five lines of the lower hundred lines (11 thru 00) are selected for the test. Five lines of the upper hundred lines (111 thru 100) are also selected for the test. Thus a total of ten lines are selected for the tests.

1.08 A different ten lines should be selected for each successive test. A pattern similar to that shown in Fig. 1 may be used.

Test No.	Lower Hundred Lines	Upper Hundred Lines
1	11-21-31-41-51	161-171-181-191-101
2	61-71-81-91-01	111-121-131-141-151
3	12-22-32-42-52	162-172-182-192-102
4	62-72-82-92-02	112-122-132-142-152
5	13-23-33-43-53	163-173-183-193-103
6	63-73-83-93-03	113-123-133-143-153
7	14-24-34-44-54	164-174-184-194-104
8	64-74-84-94-04	114-124-134-144-154
9	15-25-35-45-55	165-175-185-195-105
10	65-75-85-95-05	115-125-135-145-155
11	16-26-36-46-56	166-176-186-196-106
12	66-76-86-96-06	116-126-136-146-156
13	17-27-37-47-57	167-177-187-197-107
14	67-77-87-97-07	117-127-137-147-157
15	18-28-38-48-58	168-178-188-198-108
16	68-78-88-98-08	118-128-138-148-158
17	19-29-39-49-59	169-179-189-199-109
18	69-79-89-99-09	119-129-139-149-159
19	10-20-30-40-50	160-170-180-190-100
20	60-70-80-90-00	110-120-130-140-150

Fig. 1.

1.09 On the 800 point bank linefinders there is a message register meter associated with each line. Record the meter reading associated with the line to be tested. Record the meter reading associated with the line after the testing has been completed. If there is a difference in the meter reading, trouble is indicated. The trouble should be cleared. The message meter register should be turned back until the meter reading prior to the testing is obtained. In general the trouble indicated by the test set will be the same trouble which pegged the meter.

1.10 The TIP lamp lights to indicate continuity of the tip side of the line.

1.11 The RING lamp lights to indicate continuity of the ring side of the line.

1.12 The SLEEVE lamp lights to indicate continuity of the sleeve.

- 1.13 The BCO lamp lights to indicate that there is BCO battery on the sleeve (idle line).
- 1.14 The BUSY lamp lights to indicate that there is ground on the sleeve (line being used).
- 1.15 The test set will indicate the type of trouble by lamp patterns, combination of light and dark lamps. See Practice A721.720 for some of the lamp patterns and the more common type of trouble indicated by each lamp pattern.

#### Precautions

- 1.16 The test should not be performed using the EE-SC-9812 test set unless the office voltage is 49.9 volts.
- 1.17 AVOID shorting the line (positive and negative) terminals of any line which is in use.
- 1.18 AVOID leaving a linefinder switch out of service (busied) for longer than is absolutely necessary. A linefinder switch out of service (busied) can significantly lower the grade of service provided the subscribers.

## 2. TEST APPARATUS

- 2.01 (1) G. T. Co., EE-SC-9812 Linefinder Continuity Test Set
- 2.02 (1) W. E. Co., 2W12A Cord Assembly
- 2.03 (1) G. T. Co., 3WG1V Cord Assembly

## 3. PROCEDURE

### Test A - Line and Trunk Continuity and Polarity Test on Linefinder Equipment

#### Preparation for Test A

- 3.01 Determine the circuit number for the type of linefinder on which the tests are to be made. Select ten lines for the test, see Fig. 1.
- 3.02 For linefinder circuits H-38938 and similar paragraphs 3.03 thru 3.05 apply.
- 3.03 Operate the group lever switching key to the GRP. A position for the first five lines to be tested. Operate the group

lever switching key to the GRP. B position for the SECOND five lines to be tested. This permits each distributor relay group and rotary distributor switch to be tested with all linefinder switches in the group.

- 3.04 The above paragraph applies to a twenty trunk linefinder board which is not a split board.

Note: If a linefinder board is split, the following lines will not appear in the other group unless there is a case of trouble. Lines 11 thru 50 and 111 thru 150 should never appear in the B group. Lines 61 thru 00 and 161 thru 100 should never appear in the A group.

- 3.05 When the test is performed in a split linefinder board the group lever switching key should remain in the normal position. Operation of the key has no effect because the fifth vertical bank is permanently grounded on a split linefinder board.

- 3.06 For linefinder circuits H-41921 and similar, paragraphs 3.07 thru 3.09 apply.

- 3.07 Operate the group lever switching key to the GRP. A position. This permits the linefinder switches in the A group to have access to all of the ten lines to be tested. Operate the group lever switching key to the GRP. B position. This permits the linefinder switches in the B group to have access to all of the ten lines to be tested.

- 3.08 The above paragraph applies to a thirty trunk linefinder board which is not a split board.

- 3.09 When the test is performed on a split linefinder board the group lever switching key should remain in the normal position.

- 3.10 For linefinder circuits H-75311, H-75315, H-75450 and similar, paragraph 3.11 applies.

- 3.11 Operate the busy key on the group distributor relays associated with the B group. This permits the linefinder switches in the A group to have access to all of the ten lines to be tested. Operate the busy key on the group distributor relays associated with the A group. This permits all linefinder switches in the B group to have access to all of the ten lines to be tested.

3.12 Determine the type of line to be tested, regular, P.A.B.X. or coin box. Determine the type of office in which the lines are located, director or non-director office. In director offices, operate the DIAL TONE key to the A position for all lines except coin box lines. Operate the DIAL TONE key to the B position for coin box lines. In non-director offices, operate the DIAL TONE key to the B position for all lines except coin box lines. Operate the DIAL TONE key to the A position for all coin box lines.

3.13 Check that the dial tone potentiometer on the test set is correctly set. **IMPORTANT!** The check should be made on the lower shelf of linefinders only. The line terminal used for the test is 29.

3.14 Using the 2W12A cord assembly connect battery and ground jack on the test set to a battery and ground source. Connect the white lead clip to the load side of a negative battery fuse. Connect the red lead clip to a positive battery (ground) bus. Connect clips to a battery and ground block when provided.

**CAUTION:** When completing the connection, connect the supply end last. When removing the connection remove the supply end first. **DO NOT** obtain ground from a frame assembly.

3.15 Insert the 310 plug of the 3WG1V cord assembly into the LINE jack of the test set.

3.16 Connect the clips of the 3W1GV cord assembly to the line terminals 29 on the linefinder board terminal block. Connect the white, blue and red leads to the tip, ring and sleeve terminals respectively. Connect to the terminals located at the incoming side of the line and cut-off relay equipment.

3.17 If there is ground on the sleeve of the line under test, the busy lamp lights. The start key must be in the normal position for this test. If the busy lamp does not light, it indicates that the line is idle.

3.18 Turn the potentiometer in a counter-clockwise direction so that the maximum resistance is inserted into the circuit. This will prevent the linefinder from releasing from the line once it has seized the line.

3.19 When testing regular or coin box lines, operate the START key to the REG. LINE - C.B. LINE, position. When testing P.A.B.X. lines, operate the START key to the P.A.B.X. position. This will cause a linefinder to seize the line.

3.20 Turn the potentiometer slowly in a clockwise direction until the tip, ring and sleeve lamps are extinguished on the test set. The potentiometer should be set so that the test set will not test more than 24 linefinders in 20 seconds.

3.21 Remove the clips of the 3WG1V cord assembly from the line terminals 29 on the linefinder board terminal block. Restore the START key to the normal position. The potentiometer and test set are ready for the test.

#### Method for Test A

3.22 Connect the clips of the 3WG1V cord assembly to the subscriber's line terminals on the linefinder board terminal block. Connect the white, blue and red leads to the tip, ring and sleeve terminals respectively. Connect to the terminals located at the incoming side of the line and cut-off relay equipment.

#### Line Busy

3.23 If there is ground on the sleeve of the line under test, the busy lamp lights. The busy lamp lights to indicate that the line is in use. Start key must be in the normal position for this test.

#### Line Idle

3.24 If the busy lamp does not light, it indicates that the line is idle.

3.25 When testing regular or coin box lines, operate the START key to the REG. LINE - C.B. LINE position. When testing P.A.B.X. lines, operate the START key to the P.A.B.X. position.

3.26 Observe that a linefinder switch (pre-selected by the group distributor switch) seeks the line. Observe that the linefinder seeks the line under test with a smooth, positive vertical and rotary motion.

- 3.27 Observe that the linefinder switch stops on the test line, and cuts thru.
- 3.28 With the start switch operated, the linefinder switches will be successively seized, operated, and released automatically by the test set.
- 3.29 Continue to test until each linefinder switch in the board has sought, stopped on, cut-thru on and released from the test line.
- 3.30 Operate the START key to the NORMAL position.
- 3.31 Restore linefinder group lever switching key or busy key of the group distributor relays to normal depending on which applies.

- 3.32 Move clips of 3WG1V cord to next line to be tested.
- 3.33 Proceed as described in paragraphs 3.22 thru 3.32 until all ten lines are tested on all line linefinder switches in the board.
- 3.34 Remove all test apparatus and restore equipment to normal.

#### **4. REPORTS**

- 4.01 Complete the required records in accordance with Practice A641.000.