Patent #4,912,755

LOOP CURRENT TEST SET
ITC-3004 (Kit)

USER'S MANUAL

PLEASE READ BEFORE USING YOUR 3004 TEST SET

CAUTION: THE LOOP CURRENT TEST SET IS DESIGNED TO MEASURE D.C. COMMUNICATIONS LOOP CURRENT ONLY. IT IS NOT A GENERAL PURPOSE VOLT OHM METER. ATTEMPTING TO MEASURE A.C. VOLTAGE OR CURRENT WILL DESTROY THE METER AND VOID THE WARRANTY.

i. GENERAL INFORMATION

Your tester is designed to help you test for normal telephone circuit operating conditions before connecting terminal equipment to Central Office (C. O.) lines. FCC guidelines specify that the telephone company should provide a minimum of 23 milliamps (ma) and a maximum of approximately 120 ms of D.C. loop current.

Most terminal equipment requires between 23 ma and 35 ma of loop current for proper operation. (Special service circuits such as teletype, etc… may have different loop current requirements.)

Less than 23 ma may cause poor transmission, ghost rings, wrong numbers and other problems. The problems and the low loop current reading should be reported to the serving telephone company.

More than 35 ma may cause problems such as cutoffs, repeated burn-out of Key and PBX circuit packs, telephone instruments that need replacement for no obvious reason, “squeal” and “hollow” sounds on the line, and other malfunctions.

When high loop current is encountered, it is very important to adjust the D.C. current down to an acceptable level in order to protect equipment and insure optimum performance.

The ITC-4001 loop Attenuator, provided with this kit will reduce excessive D>C> loop current without degrading the voice or data quality of the line. Additional ITC-4001 Attenuators may be ordered from Independent Technologies.

YOUR LOOP CURRENT TEST SET PERFORMS SEVERAL DIFFERENT CIRCUIT TESTS

A. LOOP CURRENT TERMINATION TEST
Measures D.C. Loop current by directly terminating the C.O. Line.

B. IN LINE TEST
Measures D.C. loop current in series with the C.O. line and the terminal equipment during operation.

C. TONE TESTS
Your 3004 Tester generates two distinctively different warble tones which may be used to troubleshoot loop problems or to locate cables.

II. USING YOUR TEST SET

A. LOOP CURRENT TERMINATION TEST:

1. **Set the POWER SWITCH to the OFF position**
2. **Disconnect the premise equipment from the C.O. line.**
3. **Connect the C.O. line to the test set.**
    a. To test modular systems (AT&T Merlin, etc.), plug the incoming C.O. line cord into the modular jack on the test sel.
    b. To test modular “ground start” systems:
        1.) Insert the T-Adapter provided with the kit into the modular jack on the test set.
        2.) Connect the line cord to the T-Adapter (line one jack).
        3.) Connect the alligator cord to the T-Adapter (line two jack).
        4.) Connect the red alligator lead to a local ground.
    c. To test **non-modular systems**, use the alligator clip cord:
        1.) Connect the green alligator clip to the “tip” side and the red clip to the “ring” side of the C.O. line.
        2.) For “ground start” trunks, attach the yellow alligator clip to a local ground.

4. **Set the TERMINATION SWITCH to the 600 or 900 ohm position.**

    Setting depends on how the trunk is optioned for loop length. Systems without loop length options are assumed to be 600 ohm for test purposes. The guideline is 600 ohm for **loop lengths of less than one mile.**

5. **Set the POSER SWITCH to the ON position.**

    The test set screen will display the D.C. loop current reading for the line being tested and the Termination Switch setting (600 or 900 ohm).

    For Ground Start trunks, momentarily press the GROUND START SWITCH to draw dial tone from the C.O. and obtain a reading.

A minus sign on the screen indicates that the “tip” and “ring” connections to the test set are reversed (This may indicate a system problem).

6. **D.C. loop current readings in the 23 to 35 ma range are acceptable.** Proceed to the “In Line” test.

   D.C. loop current readings below 23 ma should be reported the serving telephone company.

   If the D.C. Current is over 35 ma, install the ITC-4001 LOOP CURRENT ATTENUATOR included with the test set.

B. IN LINE TEST:

1. **Set the POWER SWITCH to the OFF position.**
2. **Connect the tester to the C.O. line.**

   a. Connect the green alligator clip to the “tip” side and the red clip to the “ring” side of the C.O. line.
   b. Connect the yellow clip to the “tip” and the black clip to the “ring” side toward the premise equipment.

3. **Select the In Line position on the test set.**
4. **Set the POWER SWITCH to the ON position. The screen will display “In Line”.**

5. **Operate the premise equipment “off hook”.**

   The test set will display actual operating D.C. loop current.

   This reading will almost always be different than the direct C.O. line reading, due to differences in manufacturers equipment and internal system options. D. C. loop current in the 23 to 35 ma range usually provides the best system operation.

6. **If the D.C. current is over 35 ma, install the ITC-4001 LOOP CURRENT ATTENUATOR, included with the test set.**

C. **TONE TESTING"**

1. Set the POWER SWITCH to the ON position.
2. Depress the TONE SWITCH.
   "Tone" will be displayed on the screen.

3. Insert the modular alligator clip cord into the jack on the test set. Tone #1 (low tone) appears on the red and green alligator clips. Tone #2 (high tone) appears on the yellow and black clips.

   The tones may be used simultaneously without degrading tone quality.

III. BATTERY REPLACEMENT

Remove the battery cover on the back of the case by sliding it outward to expose the battery.

IMPORTANT – Always store the Loop Current Test Set in the OFF position to avoid battery discharge.

IV. CIRCUIT BREAKER

The Loop Current Test Set is equipped with a 100 ma D.C. breaker. It will withstand in excess of 120 ma of D.C. current for a few seconds before operating. The delay allows for an accurate D.C. current reading even under extreme conditions.

The breaker is located on the upper left side of the meter in the recessed area. Reset may be accomplished after a circuit cool down period by depressing the breaker button until it latches.

V. WARRANTY

Independent Technologies, Inc. warrants the Loop Current Test Set against all defects in material and workmanship for a period of one full year from the date of original purchase subject to the following conditions: Warranty does not cover accessory items, battery replacement, damage caused by negligence, misuse or common carrier shipment damage. Damaged products should be returned to the factory, postage paid, in the original package or a suitable equivalent. Defective units still under warranty sill

be repaired or replaced at the manufacturers option, for actual cost of repair not to exceed 50% of current replacement cost.

YOUR ITC-3004 LOOP CURRENT TEST KIT CONTAINS:

(1) Loop Current Test Set
(2) 3001A Alligator Clip Cord
(3) 4001 Loop Current Attenuator
(4) 267C In-line T-Adapter
(5) Two Conductor Modular Line Cord
(6) Padded Carrying Case
(7) Duracell Battery (not shown)
(8) User's Guide (not shown)

LOOP CURRENT ATTENUATOR

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The ITC-4001 Attenuator reduces D.C. loop current by adding a balanced circuit on each side of the line. Install to protect premise equipment whenever a reading of 35 ma or more is encountered.

ORDERING INFORMATION

Loop Current Test Set
Order ITC-3004

(AT&T personnel order complete kit by
COMCODE #405-718-958)

Loop Current Attenuator
Order ITC-4001

(AT&T personnel order
COMCODE #405-788-100)

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