# SXS SYSTEMS

# AUTOMATIC LINE INSULATION TEST SET

# (SOUTHERN CAL. TYPE)

## 1. GENERAL

1.01 This Appendix describes the use of the automatic subscribers line insulation test set designed in the Southern California Area. This set is of the electronic type and is fully automatic. It is capable of testing consecutively seven units of equipment. The tests are made through the regular test distributors and test connectors. In those cases where a regular test distributor is jointly used with the test desk the trunk must be made busy to the test desk during the testing process. The testing progresses from terminal to terminal and requires about five hours to complete a 10,000 line office. If an insulation impairment is encountered a message ticketer prints the number of the line on a continuous roll of paper.

1.02 Indications will be received on testing P.B.X. lines and certain lines equipped with thermistors due to the retarded discharge period on the line. These indications should be excluded.

1.03 In making the line tests the pulsing circuit will steer the test circuit to the first number of the first unit to be tested. If there is ground on the sleeve indicating a busy condition, or there is no battery on the tip or ring conductors indicating a vacant connector terminal, the line is not tested and the test circuit is advanced to the next line.

1.04 On idle lines, the sleeve terminal is grounded by the test circuit, operating the cutoff relay of the line under test. The line is "conditioned" for test by discharging cable conductor and condenser capacity and one of the following tests applied, depending on the operation of the proper keys:

1. (SHG) Short and ground test. The tip is grounded by test circuit and the ring is presented to the detector circuit.

2. (BATT) Battery cross test. The ring is grounded and the test circuit tests for battery on the tip.

1.05 If the test circuit detects an insulation defect, the line is again "conditioned" as a safeguard to prevent false trouble indications and a second test of the same type is made. A time interval of approximately 0.90 seconds is required per line for regular and trouble re-test.

1.06 If it is desired to start the test circuit on other than the first unit, this may be done by operating the (TPC) key in the set.

1.07 The test set is designed to operate in two test ranges as follows:

| Test | Range | Resistance Values | 100,000 120V Scale Voltmeter Readings |
|---|---|---|---|
| (SHG) | A | 900,000 | 10 |
| (SHG) | B | 230,000 | 30 |
| (BATT) | A | 2,300,000 | 2 |
| (BATT) | B | 700,000 | 6 |

It is intended that range A be used in dry weather testing and range B used in wet weather.

## 2. APPARATUS

No additional apparatus is required.

## 3. PREPARATION

The Test Center Supervisor should consult with the Central Office Supervisor to determine the range to be used for the tests. The range selected should be compatible with the repair forces ability to promptly process the resulting indications and existing weather conditions. Tests in the A range will generally be made in the early morning hours when the humidity is relatively high and the temperature is down.

## 4. METHOD

4.01 a. Operate the (WU) warm up key.

b. Operate the (SHG) or (BATT) key as determined by the type of test desired.

c. If test distributor assigned to L.I.T. set is jointly used by the test desk, it should be made busy in the test desk.

d. Operate A or B range key as requested.

e. Allow set to warm up for 5 minutes.

4.02 Proceed with one of the following calibrations compatible with the selected test:

A. (SHG) Test - With the (SHG) keys operated, turn the (SHG) potentiometer in a clockwise direction until the (CT) lamp lights. Then turn the potentiometer in the opposite direction slowly until the (CT) lamp is just extinguished.

B. (BAT) Test - With the (BAT) key operated, turn the (BAT) potentiometer in a clockwise direction until the (CT) lamp is just extinguished.

4.03 Operate the (ST) to start the line test cycle. If it is desired to the test on a unit other than the normally assigned first unit the (TPC) key should be operated to advance the test set to the desired unit. When the test circuit advances to the position for testing the desired unit, the release of the (TPC) key will start the test of the desired unit. The operation of the (TPC) key also places a severe operation test on the 204 type selectors in the test set.

4.04 Operate the (RP) key if successive test cycles are desired.

4.05 Operate the (TKT) key to make a test of the printer functions, locations of the 204 type switches, etc.

5.01 REPORTS

The trouble indication tickets should be recorded on form E 3826 by the Test Center as covered in B.S.P. F24.001 for processing.