TROUBLE LOCATION TESTS ON SUBSCRIBER CABLE PAIRS USING VOICE-FREQUENCY SWEEP TEST SETS AT OGT FRAMES IN NO. 1XB OFFICES

1. GENERAL

1.01 This section describes the procedures for making voice-frequency sweep tests on subscriber cable pairs at Outgoing Trunk Test Frames in No. 1XB offices.

1.02 The general theory of sweep testing is described in Section 330-450-100. Its application to subscriber loops is discussed in Section 330-450-102. The analysis and interpretation of sweep patterns as needed for precision location of troubles is described in Section 330-450-507.

2. APPARATUS

2.01 The following items of equipment are required for all tests:

(1) Voice-Frequency Sweep Test Set meeting the general requirements in Section 330-450-100.

(2) Accessory Arrangement of 565GK Telephone Set per Section 330-450-102, Figs. 1-3 (furnish locally).

(3) Decade Capacitor — 3 decade, .001-1.110 MF range 1% accuracy, 7A, G.R. 1419A or equivalent.

(4) Cord, P3E, 3 ft., equipped with one 310 plug and one plug to match sweep set.

(5) Cord, P3N, 6 ft., equipped with one 310 plug and one 241A plug (3P17B).

(6) OGT Test Control Circuit SD-25117-0112, modified as indicated in Fig. 1.

(7) Cord, P3E, 12 ft., equipped with two 310 plugs (3P6G).

(8) 3A Noise Measuring Set (see Section 103-611-100).

2.02 The following item is required for trouble location tests per Section 330-450-507:

Artificial Cable Kit — Western Electric 1A ACK or equivalent.

2.03 The sweep set requires a 117V.AC power outlet and suitable ground, or it may be equipped with a 3-wire power cord. The telephone set lamps may be activated with AC power by providing a 2012A transformer wired locally as indicated in Section 330-450-102, Fig. 1.

2.04 It will be most convenient to arrange the test equipment on a table or cart that can be readily moved out of the way as necessary for other operations. The sweep set should be arranged for direct viewing to prevent reading errors.

3. PREPARATIONS FOR TESTING

3.01 Connect the test apparatus as shown in Fig. 1. The numbers on the figure refer to the items in the apparatus list.

3.02 Connect the sweep test set to a suitable ground and plug the power cord into a 117V.AC outlet. When the set has warmed up sufficiently, calibrate it in accordance with the manufacturer's manual.

Note: Do not allow the spot to stand in one location on the scope face for extended periods of time.

3.03 The handset remains on-hook and the exclusion key normal (down) for all tests. Tests are normally made without ringing on the line (open circuit).

3.04 The sweep set is adjusted for impedance measurements or as required for each test.

4. TEST PROCEDURE

(A) To Seize a Loop

4.01 Operate the DIAL button and connect the long cord from the LINE jack of the telephone set to the test jack per Fig. 1.

4.02 Operate the proper OGT keys and pulse forward the telephone number for the loop to seize it without ringing. When the line is seized (not busy), operate the TEST PAIR button on the telephone set. The characteristic curve of the line appears on the sweep set. To monitor the line at any time, depress the DIAL button again.

4.03 When testing is completed release the circuit in the normal manner, using the Test Control Circuit.

(B) To Perform Other Tests

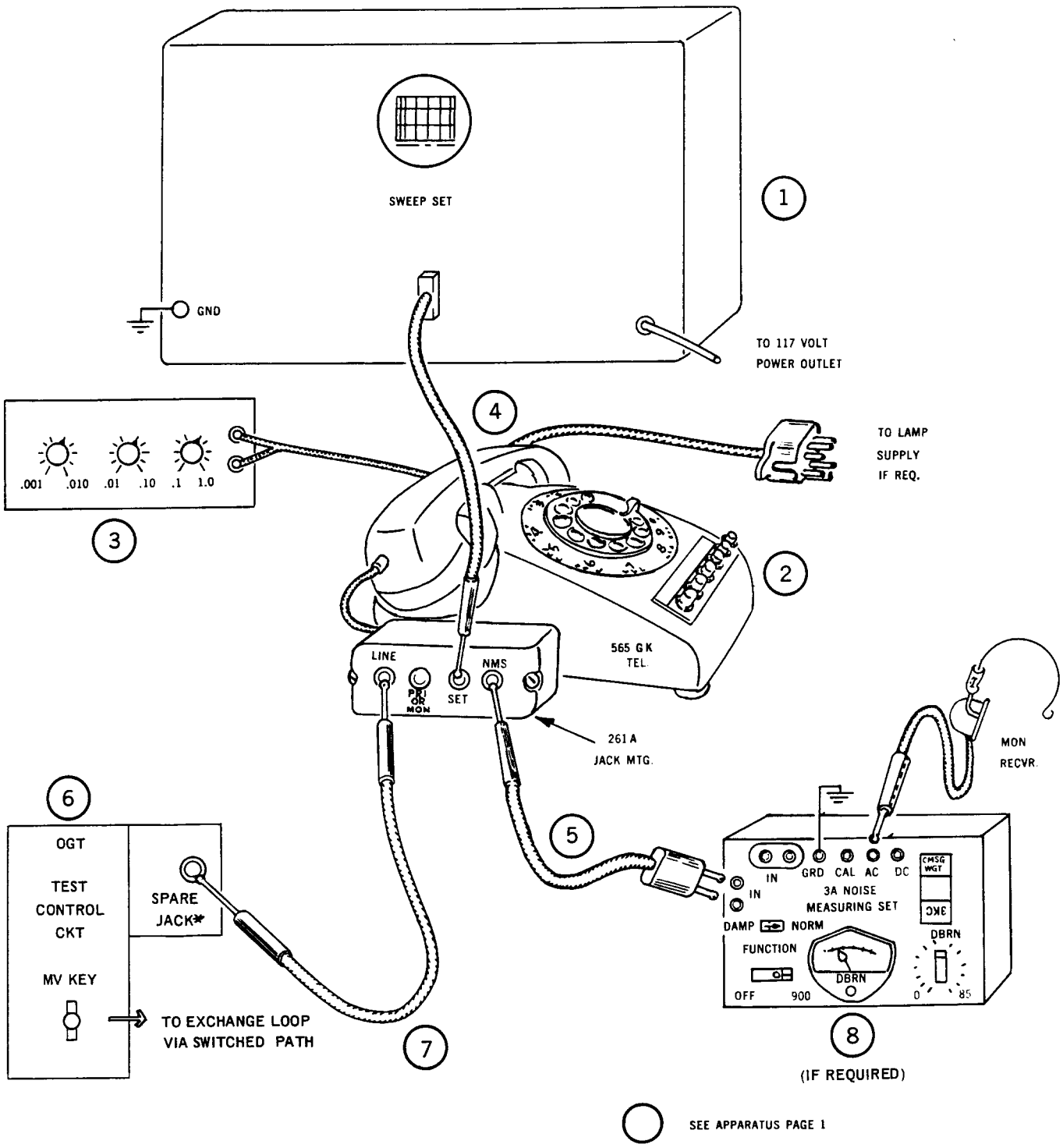
4.04 With the pair seized and the TEST PAIR button operated, it may be necessary to make other tests. To measure tip-ground characteristics, operate the TEST TIP button on the telephone set. To measure ring-ground characteristics, operate the TEST RING button on the telephone set.

4.05 To make shunt capacitance measurements, operate the CAL button on the telephone set. This connects the decade capacitor to the sweep set in place of the pair under test. The procedure for measurement of shunt capacitance and conversion of measurements to pair length is described in Section 330-450-507.

4.06 If noise measurements are requested, operate the NMS key of the telephone set. The 3A NMS is connected to the pair in place of the sweep set. The function switch of the NMS should be set to 900. The receiver of the NMS may be used as a monitor.

4.07 The C MSG network is used in the 3A NMS for noise measurements. When a widening of the sweep trace due to noise is noted, noise measurements may be made first with the C MSG network and then with the 3KC FLAT network. Differences of 15 db or more would indicate the widening of the sweep trace may be caused by 60CPS voltage induced in the pair.

4.08 Shorts, opens, crosses, and grounds may occasionally be encountered. These troubles should be cleared in the normal manner before making further tests.



* BRIDGE TIP OF SPARE JACK TO BOTTOM LUG LEFT SIDE OF KEY (GREEN WIRE ON MV SIDE OF CIKA KEY) AND BRIDGE RING TO BOTTOM LUG ON RIGHT SIDE (GREEN WHITE WIRE ON MV SIDE OF CIKA KEY). THESE ARE THE ONLY OPEN CONTACTS ON THE MV SIDE OF THE KEY WHEN THE KEY IS IN THE NORMAL POSITION.

Figure 1