

GENERAL TESTS

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1. GENERAL INFORMATION1.1 Description of Tests

1.11 This section outlines instructions for performing tests applied to circuits for which no detailed test methods are provided in other handbooks. This section is also referred to in other handbooks for the method of performing certain tests, thus eliminating the necessity of repeating these general tests in a large number of sections.

1.2 Special Test Precautions for Electronic Devices

1.21 Refer to Handbook 3 Section 0.3 for these precautions.

1.3 Inspection Items

1.31 It is advisable to inspect the codes of readily demountable apparatus installed in sockets, jacks or connecting blocks to insure that it is in agreement with information on the circuit drawings.

1.4 Caution - Dry Cells

1.41 Dry cells which are about exhausted through use on shelf aging may leak a corrosive liquid. Avoid possible injury to cables, forms or apparatus by inspecting the condition of the dry cells before using the testing equipment in which they are contained. When such testing equipment is not in use store in a safe place with batteries removed.

2. RECORDS AND REQUIREMENTS

2.1 Forms SD-4-1313 and SD-4-1316 are required for recording the results of general tests. Detailed instructions are given in Section 1 of this handbook.

3. OPERATING TESTS

3.1 Operating tests should test all features as described in the circuit description (CD) of the circuit under test.

3.2 The operation of relays which work over loops external to the office under test should be checked by operating tests over the cable pair to the connecting circuits in the other office, by operating tests using test or adjusting sets to set up loop conditions which provide either test current values for the relays or working limit conditions, or by a current flow check of the relays as described under "ADJUSTMENT TEST."

3.3 A check should be made that capacitors in audible ringing and tone paths function properly.

NOTE: Capacitors in tone and AC supply paths may be conveniently checked with the AC scale or ITE-4442. A voltage check should be made from ground to the supply lead, and also across the terminals of the capacitor with a load on the supply lead (to insure that the capacitor is not shorted).

3.4 Operation tests shall include all features of connecting circuits which may be required to make the circuits test functionally complete. Insofar as possible these tests shall be made on an over-all basis including all cross connections which may be required between circuits, except when the connection is to another office outside the building.

3.5 Operating tests for miscellaneous incoming and outgoing trunk circuits and test lines used in dial and manual central offices that originate or terminate in a local switchboard or at a distant office should be made using the method in Section 4 of Handbook 50.

4. TALKING OR TRANSMISSION TESTS

4.1 Talking tests are made by setting the circuit in the talking position and checking the transmission either by talking or tone. This test may be made separately or in conjunction with the operating tests.

4.2 Transmission tests are made in accordance with Section 10 of Handbook 50.

5. FUSING TESTS

5.1 Check of Fuses

5.11 Check each fuse block and fuse panel equipped with alarm type fuses to verify for proper location, designation, capacity and type of each fuse.

5.2 Fuses Installed by Shop

5.21 With all fuses installed and battery on the unit bus bar, loosen all fuses at one end, one at a time, checking at the circuit end with a volt-ohmmeter that battery is removed from the corresponding circuit. Tighten all fuses.

5.3 Fuses Not Installed by Shop

5.31 With a volt-ohmmeter check that all fuse posts are clear of foreign battery or ground.

5.32 Install the fuses one at a time and check with the volt-ohmmeter that battery is received at one point in the circuit fused.

5.33 After each fuse is installed recheck the adjacent fuse posts for absence of foreign battery before installing the next fuse.

6. TONE TESTS

6.1 All the various tone connections at the miscellaneous relay racks, fuse panels, or other principal distributing point shall be tested for foreign battery and ground or for inductive crosses with other tones. A test receiver (High resistance type), connected to either battery or ground, is used to make the tests.

7. TEST OF TEST JACK WIRING

7.1 Test all test jack circuits and test battery supply circuits at all appearances for proper wiring. This test need not be made on test jack circuits and test battery supply circuits that have been used in performing tests.

8. TEST OF SWITCHMEN'S TALKING LINE

8.1 Test Operations

8.11 Make a signaling and talking test from each switchman's station to a switchman's station on other floor using 2 ITE-2580A combination talking sets.

8.12 Make a signaling test from the test desk to each floor and make a talking test from the test desk to each switchman's station.

8.13 Make a talking test from the talking jack of each bay of the traffic register rack and message register rack and from the IDF to a switchman's station on another floor using the ITE-9650 operator's telephone set at the register racks.

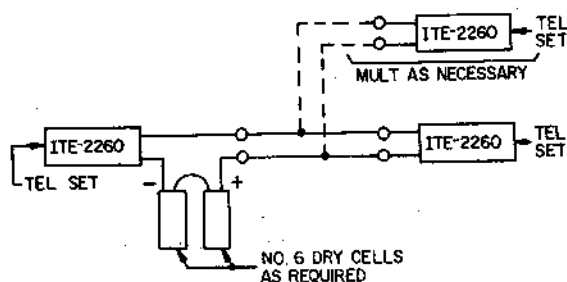
9. CONTINUITY TESTS

9.01 Description of Test

9.011 Continuity tests are made with the prescribed test sets which provide either an audible or a visual indication by means of a light or a meter deflection when the circuit including the lead under test, is closed. Occasionally, conditions may necessitate the establishing of a talking circuit when testing between one or more remote points. (See Figure 1) for method of establishing talking circuit.) In making continuity tests, it is necessary to verify locations and that the correct figures and issues are used as specified in the "Wiring Lists," specifications or cross connection lists.

9.012 It must be noted that various conditions will determine the choice of test set to be used. For instance, the R-3311 Flashlight Test Lamp may be used when a lamp signal is desired; the ITE-4002, Tone Buzzer Set should be used when working circuits are involved which cannot be released from service during the interval the continuity tests are made; and the ITE-4137, AC Continuity Test Set may be used providing 105-125 volt AC current is available, but should not, however, be used on vacuum tube circuits, carrier system, telephone repeater, etc.

NOTE: Before starting continuity tests, the circuit drawings must be checked for grounds or common paths which would cause false continuity. Do not use a ground return on the buzzer when making continuity tests.

**FIGURE 1.****TALKING CIRCUIT****9.02 Test Sets and Accessories**

<u>Amt.</u>	<u>ITE-</u>		<u>With</u> <u>Kit</u>	<u>See</u> <u>Note</u>
1	2045	Idle Multiple Test Set		
1	4002	Tone Buzzer Set	None	4
1 or	4442	Volt-Ohmmeter	None	
1 or	4137	AC Continuity Test Set	102,32	
1 or	4137A	Test Set		
1	4251	Rapidohm Test Set	None	
1	R3311	Flashlight Test Set		1
1 or	4490	Assignment Test Set		2
1 or	4261A	Whistler Test Set		3
1 or	4511	Whistler Test Set		1,2
1 or	4546	Dry Reed Relay Reader		1,2
As Req.	2260	Call Wire Extension	102	

NOTES :

- (1) Available in Crossbar Accessory Set ITE-4023 or may be requisitioned separately.
- (2) Available in #5 Crossbar Accessory Set, ITE-4350, or may be requisitioned separately.
- (3) Part of Fault Finder Kit ITE-4428.
- (4) Used only on working circuits which cannot be released for test.

9.03 Cords

9.031 Cords are furnished with all sets, however, additional cords may be required depending upon the setup.

9.032 Single conductor cords equipped with banana plugs may be extended using the R-2818 connectors.

9.04 Tests Using ITE-4137 or ITE-4137A

9.041 The AC Continuity Test Set may be used for making all continuity tests formerly made with a DC buzzer set. It furnishes a source of DC current for use in a talking circuit, and dry tone for use in continuity testing where circuit conditions make it inadvisable to use much current. Refer to TMO-4137, 4137A in Handbook 100 for maintaining the ITE-4137 or ITE-4137A test set.

CAUTION 1: Use only on 105-125V. AC.

CAUTION 2: Disconnect power cord when not in use.

CAUTION 3: Do not use on vacuum tube circuits, carrier systems, telephone repeaters, etc.

9.042 Plug the power cord into a convenient 60 cycle 115 volt outlet and prepare the set, using a suitable test setup from those illustrated in Figure 2, 3 and 4.

NOTE: ITE-4137 only if the tone circuit is to be used for a considerable time, short the BUZZ jacks through 10 to 15 ohms using 2 ITE-9548 cords and 2 ITE-8507 alligator clips to avoid excessive heating of the buzzer.

