

TESTING AND ADJUSTING CIRCUIT PER SD-61041-02 FOR 1000-CYCLE, TWO-TUBE RINGERS DESCRIPTION

1. GENERAL:

1.1 This section describes the equipment covered by Drawing SD-61041-02 for testing and adjusting the following 1000-cycle, two-tube ringer equipment:

- 1000-20-cycle Terminal Ringers
- 1000-20-cycle Intermediate Ringers
- 1000-135-cycle Intermediate Ringers—
(1000-cycle branch)

1.2 Drawing SD-61041-02 covers the equipment provided for testing two-tube ringers in offices already furnished with a No. 525-A panel for testing 1000-cycle single tube ringers and where an entirely separate test circuit for the two-tube ringers is not justified.

1.3 The equipment consists of a No. 525-A panel and certain additional apparatus. This section describes only the additional equipment.

2. GENERAL DESCRIPTION:

2.1 The equipment exclusive of the jacks is mounted on a panel arranged for relay rack mounting so that it can be placed adjacent to the No. 525-A panel if desired. Fig. 1 shows the arrangement of the apparatus.

2.2 The jacks associated with the test panel are usually located in a miscellaneous jack strip adjacent to the test panel.

2.3 This equipment, in conjunction with the No. 525-A panel, provides for the following features.

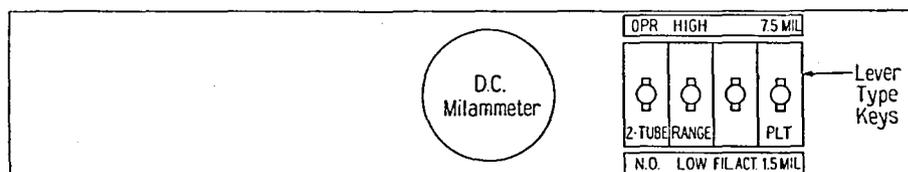
- (a) Making Routine Tests of Ringers.
- (b) Making Tests of Ringer Vacuum Tubes.
- (c) Applying Electrical Testing and Adjusting Current to the A.C. Relays of Ringers.

3. DESCRIPTION OF PARTS:

3.1 Four lever type keys are provided, with functions as follows:

3.2 The 2-TUBE key, when operated to the OPR position, arranges the circuit for the application of 1000 cycle "operate" current to the ringer connected for test. When operated to the NO position it arranges the circuit for the application of "non-operate" current to the ringer. With this key in its normal position the circuit is arranged for the application of "operate" current to No. 513-A ringers. In the above cases the TEST key at the No. 525-A panel must be operated to the VF position to apply current to the ringer under test or the dial of the No. 525-A panel can be operated, which will apply current for as many tenths of a second as the figure dialed.

3.3 The RANGE key, when in its HIGH (normal) position, sets up the proper condition for sending the correct value of 1000-cycle current into ringers wired for high sensitivity; that is, ringers with all of the windings of the input transformer RC in use. This is the normal condition for terminal ringers and 1000-20-cycle intermediate ringers arranged for use as terminal ringers. The key is operated to the LOW position in cases of ringers wired for reduced sensitivity; that is, with one of the windings of the input transformer RC unused. This is the normal condition for intermediate ringers and for special cases of terminal ringers used as intermediate ringers. The voltage applied to the ringer is increased by approximately 5 db when this key is operated to the LOW position.



FRONT OF PANEL

Fig. 1.

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- 3.4 The FIL ACT key when operated, reduces the 1000-cycle input through the ringer under test by 2 db. The key is so used for making filament activity test of ringer vacuum tubes.
- 3.5 The PLT key is used in taking readings of the plate currents of the detector tubes. Connection is made to the test circuit from any detector tube plate circuit by inserting a dummy plug into the tube PLT jack. When the key is operated to the 1.5 MIL position, the DC milammeter of the test set reads the actual plate current of the tubes.

NOTE: When the key is in its 7.5 MIL (normal) position, the milammeter is connected through a resistance network such that the meter reads approximately one-fifth of the actual plate current. This arrangement is for the purpose of protecting the meter from excessive current in case the plate current from more than one ringer, or from a ringer which is on a circuit carrying speech at the time, is connected through the meter circuit.

- 3.6 A Weston model No. 301 DC milammeter with a scale range of 0 to 1.5 milamperes

is provided for the purpose of reading the plate current of detector tubes.

- 3.7 Three jacks are provided. The one marked 20-CYCLE has its tip and ring wired directly to 20-cycle ringing current supply and thus provides a source of unattenuated current for use in checking the adjustment of J relays of 1000-20-cycle terminal ringers to ensure against chatter. This jack is normally multiplied at the ringer bays also. The other two jacks marked TST DROP and IX DROP are connected to a resistance network which provides a means for limiting the amount of current applied to a ringer when making certain tests and adjustments. The network is ordinarily inserted in the circuit by patching the TST DROP jack to the ADJUST-J jack of the testing circuit and the IX DROP jack to the drop side of the ringer.

4. OPERATING FEATURES:

- 4.1 The detailed methods of using this equipment are given in the sections dealing with testing and adjusting 1000 cycle, two tube ringers.

5. CIRCUIT DESCRIPTION:

- 5.1 A detailed description of the circuit operation is covered in CD-61041-02.