

BELL SYSTEM PRACTICES
Teletypewriter and Manual
Telegraph Station and P.B.X.
Installation and Maintenance

SECTION P31.102
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AT&T Co Standard

KS-7476 POTENTIOMETER

DESCRIPTION, REQUIREMENTS AND PROCEDURES

1. GENERAL

1.01 This section contains the general description, requirements and procedures of the KS-7476 potentiometer, used with 14, 15 and 26-type teletypewriter apparatus equipped with 110-volt d-c motors, to permit their operation on 200 to 260-volts d-c.

1.02 The KS-7476 potentiometer completely replaces the KS-6799 potentiometer.

1.03 The KS-7476 potentiometer may be used only where the power load consists of one teletypewriter motor and is therefore not applicable to 19 teletypewriter apparatus.

1.04 In all cases, an external power switch mounted in or on the teletypewriter table should be used for controlling the power supply to the potentiometer. The switch in the teletypewriter should be shorted out and not used.

1.05 Where the 15N table is used and the power supply is non-grounded or mid-point grounded, it will be necessary to change the power-switch in the control panel to a Hubbell No. 1312 DOUBLE-POLE SWITCH. This also applies to 26A and 26B tables where the control switches are mounted in the tables.

1.06 The KS-7476 potentiometer is not to be used where special services such as unattended service, motor control, etc. are to be applied to the teletypewriter station as the power-switch controls the power to the potentiometer and therefore only manually-controlled station arrangements can be used.

1.07 With the wiring connections provided in the wiring plans for installing the KS-7476 potentiometer it is possible to use a 115-volt, 60 to 70-watt electric soldering iron when the iron is plugged into the utility receptacle provided for that purpose in some tables. However, the plug on the power cord to the teletypewriter base should be removed from its receptacle before inserting the iron plug so that the iron and the teletypewriter motor will not be drawing current at the same time, thereby overloading the potentiometer.

2. DESCRIPTION

2.01 The KS-7476 potentiometer consists of six Ward-Leonard Vitrohm resistor units mounted in two rows of three units per row having intermediate taps with screw-type terminals to facilitate the moving of various wires as necessary for the adjustment of voltages. The resistance-unit assembly is mounted in a mesh-metal cage. A removable cover is provided to make the terminals readily available.

2.02 The KS-40228 relay, which is a part of the KS-7476 potentiometer, is contained in a metal box which is mounted on the mesh-metal cage of the resistance-unit assembly. This relay has two normally-closed contacts in series for the control of a single circuit. The purpose of the relay is to provide an initial higher voltage for starting the teletypewriter motor. At the instant the switch is turned on a portion of the resistance unit is shorted out by the relay contacts. A removable cover is provided for inspection of the relay contacts.

2.03 Terminals L1, L2, M1 and M2 of the resistance unit are designated by marked metal tags. The tag marked L2 is removable and should be moved with the L2 lead. On earlier models of the KS-7476 potentiometer, terminals L1 and L2 were marked L(-) and L(+) respectively.

3. REQUIREMENTS AND PROCEDURES

3.01 With the 220-volt power supply to the potentiometer disconnected and the potentiometer in its normal operating position (marking "TOP" uppermost), apply 110-volts d-c to terminals M1 and M2. (See FIG. 1 for diagram of connections.) The relay should operate.

(a) To adjust, vary the retractive spring tension.

3.02 With the relay in its operated position, there should be a minimum clearance of 1/6" between the contacts.

(a) To adjust, bend the contact springs.

3.03 Remove leads RC1 and RC2 from the resistance unit (see FIG. 1 for diagram of connections) and place a telephone receiver in series with a suitable battery across the

relay contacts. The relay should not operate and there should be no fluttering sound in the receiver caused by partial opening of the contacts when 90-volts d-c is applied to terminals M1 and M2. (If 90-volts d-c power is not available, a 90-volt B battery may be used.)

- (a) To adjust, vary the retractive spring tension. Recheck 3.01. Reconnect RC1 and RC2 leads to terminals shown in FIG. 1.

Fig. 1

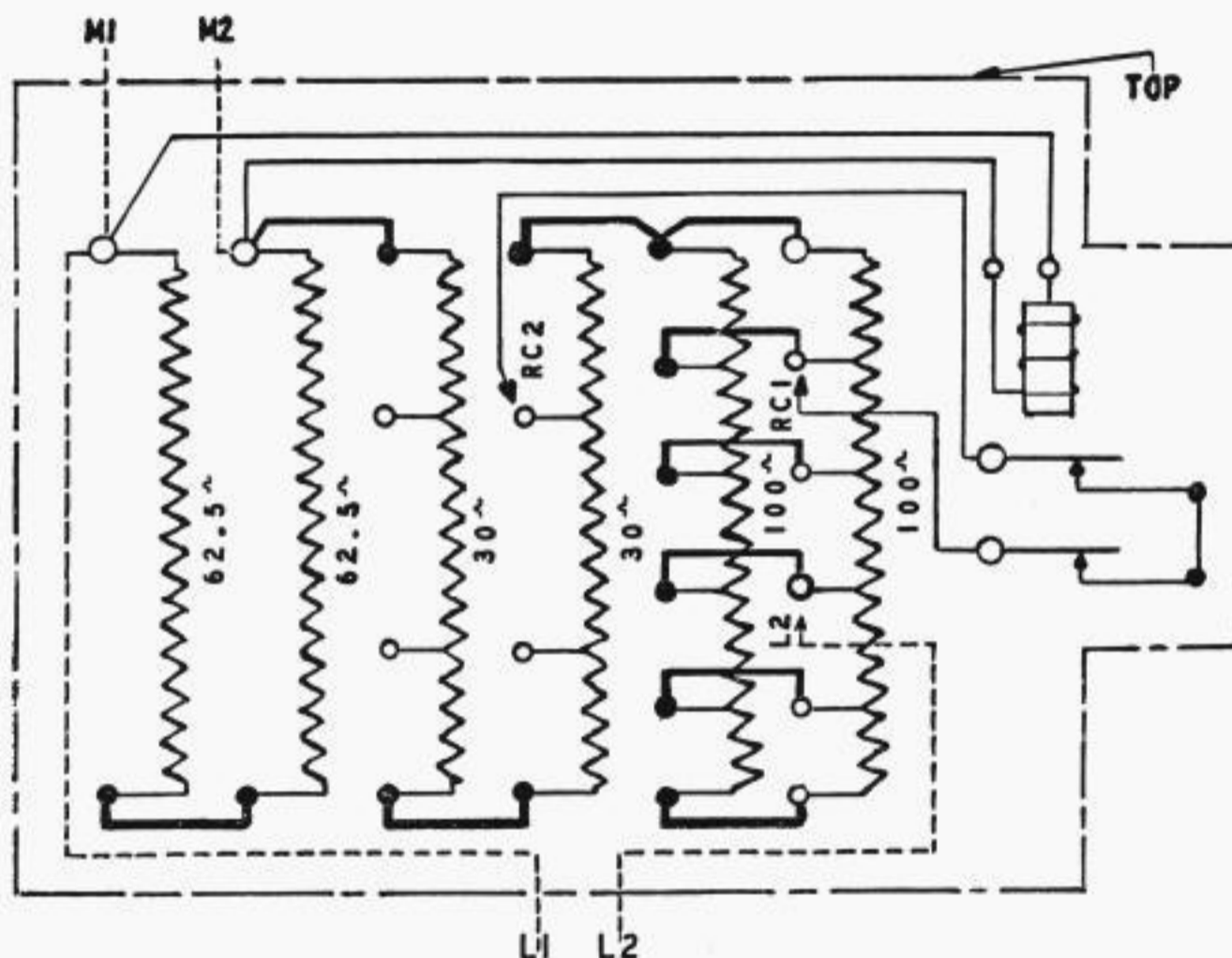


Fig. 1

Caution: Do not attempt to change any leads in the potentiometer while it is connected to the power supply.

3.04 With a suitable voltmeter connected to terminals M1 and M2, the L2 lead connected to the terminal shown in FIG. 1, the potentiometer connected to the power supply and the teletypewriter power switch in the "ON" position, the voltmeter reading should be 115 volts.

Fig. 1

(a) To adjust, disconnect the potentiometer from the power supply and move the L2 lead. Reconnect the potentiometer to the power supply. Repeat until the correct voltage across leads M1 and M2 is obtained.

3.05 Starting with the voltmeter connected to leads M1 and M2 and the teletypewriter power switch in the "OFF" position, note that the voltmeter reading at the instant-of-start, that is, when the teletypewriter switch is turned to the "ON" position and before the motor actually starts to rotate, does not go below 75 volts.

(a) To adjust, disconnect the potentiometer from the power supply and move leads RC1 and RC2. Reconnect potentiometer to power supply. Repeat until the correct voltage is obtained.