

INSTALLATION AND FIELD MAINTENANCE

A. E. CO.

TYPE 183 TELEPHONE

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1. GENERAL

1.01 This section provides installation and field maintenance procedures for the Type 183 telephone (Figure 1).

1.02 The Type 183 telephones now being manufactured have a self-compensating type transmission unit. Earlier Type 183 telephones are equipped with a manually adjustable rheostat for loop compensation. A Type 183 telephone is electrically equivalent to its corresponding Type 80 telephone.

1.03 The Type 183 telephone is designed for mounting on a vertical surface. The telephone can be adapted to anyone of a variety of installation locations by changing the position

of the dial assembly and/or the handset hook. The dial assembly can be rotated 360° and can be secured in any position along that rotation. The handset hook can be moved along a 180° arc around the front of the telephone and can be secured in any one of seven positions.

1.04 The Type 183 telephone with ABC dial, B SATT dial, or less dial is available in black, beige, green, ivory, turquoise, yellow, pink, and white.

1.05 If a ringer is required, a Type 33 ringer unit should be installed as outlined in the related publication in the 473 series.

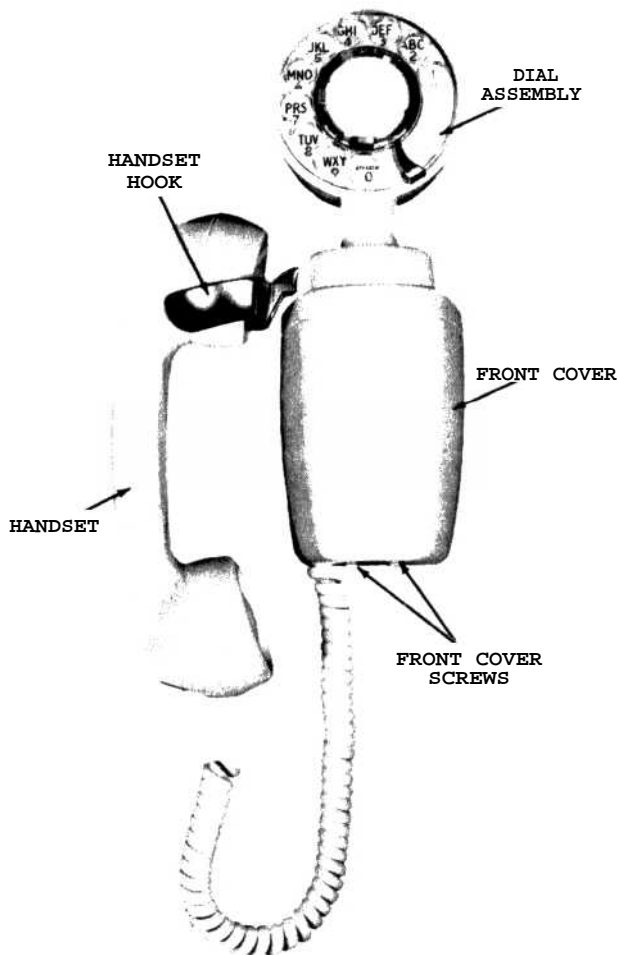


Figure 1. Type 183 Telephone.

## 2. INSTALLATION

2.01 The Type 183 telephone may be mounted on the side of a desk, on a wall, or on other flat vertical surfaces. The baseplate has six cutout holes through which mounting devices can be installed. The front cover of the telephone must be removed to gain access to the cutouts. The cover is secured to the housing by two Phillips-head screws located at the bottom of the cover. At SATT or divided-ringing stations, make a polarity check (see Paragraph 3.12) after wire connections have been completed.

### Dial Assembly and Handset Hook Positioning

2.02 After the front cover has been removed, but before the telephone has been mounted, the dial assembly and handset hook must be secured in the position required for that particular installation. The final position of the dial assembly and handset hook must be the position most convenient for their use at the telephone location. The dial assembly can be rotated 360° when the Phillips-head lock screw beneath the dial assembly ball grip (Figure 2) is loosened. Tightening the lock screw secures

the dial assembly in position. The same lock screw is part of the mechanism that holds the handset hook in position. The handset hook can be moved through an arc of approximately 180° when the lock screw has been loosened sufficiently for the circular die-cast plate (on which the hookswitch is mounted) to be moved downward about 1/8-inch. By meshing one of the slots in the circular plate with the ridge on the surface over which the edge of the circular plate passes when rotated, and when tightening the lock screw, the handset hook can be secured in position. Seven of the slots in the circular plate will mesh with the ridge.

NOTE: When positioning the dial assembly and/or the handset hook, care must be taken not to damage wires by careless twisting of the dial assembly or hook, or by rotating the dial assembly in one direction through more than one full turn. The lock screw must be firmly tightened to minimize the possibility of wire damage caused by the customer rotating either the dial assembly or the handset hook. The customer should be advised that he is not to reposition the dial and handset hook.

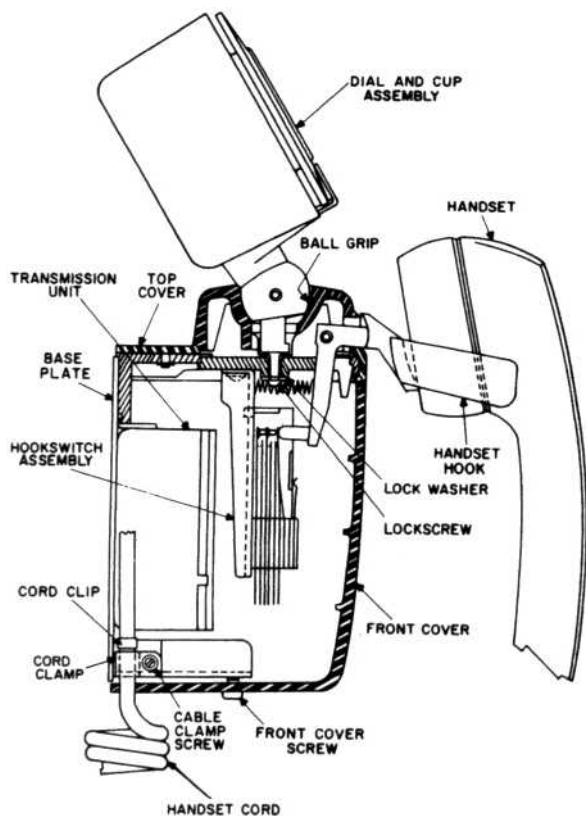


Figure 2. Self-Compensating Type 183 Telephone - Cross Section.

### Desk-Mounting Instructions

2.03 It will usually be preferable to locate the Type 183 telephone at the left front corner of the desk.

2.04 The telephone can be attached to the edge of the top of a wood desk or to a special bracket (D-731725-A) installed under the desk-top overhang (Figure 3) by installing No. 8 wood screws through the cutouts in the baseplate (cutouts marked "A" in Figure 4).

2.05 To mount a Type 183 telephone on a metal desk, holes must be drilled to accommodate No. 8 machine screws. The holes should be drilled in the side of the desk in the pattern shown for holes marked "A" and "B" in Figure 4. A hole must also be drilled to align with the oblong-shaped wire hole. If the run of inside wire is to connect first to the telephone and from there extended to a ringer, then another wire hole must be drilled to align with the circular wire hole (Figure 4). The oblong-shaped wire hole in the baseplate should always be the hole used for incoming wire which must pass through the baseplate. The circular wire hole should be used only when extending the wire run. The Type 183 telephone should be attached to the desk with four No. 8 machine screws, lock washers, and nuts.

Wall-Mounting Instructions

2.06 The location (including distance above the floor) of the Type 183 telephone on a wall must be determined, as far as practicable, according to the needs of the customer. The four cutout holes marked "A" and "B" in Figure 4 must be used to mount the telephone on a wall or other flat surface. To mount the telephone, install one No. 8 screw through either of the holes marked "A". Install a second No. 8 screw through the oblong hole marked "B". Position the telephone so that it is exactly vertical and install a No. 8 screw in each of the other holes marked "A" and "B". If masonry anchors are required, use the dimensions in Figure 4 to establish the location on the wall at which the anchors will align with holes "A" and "B", and install the anchors accordingly.

2.07 Holes marked "C" in Figure 4 are to be used when the Type 183 telephone is mounted over an electrical outlet box.

Connection Instructions for a Self-Compensating Type 183 Telephone

2.08 A self-compensating Type 183 telephone has, stamped on the baseplate, a code

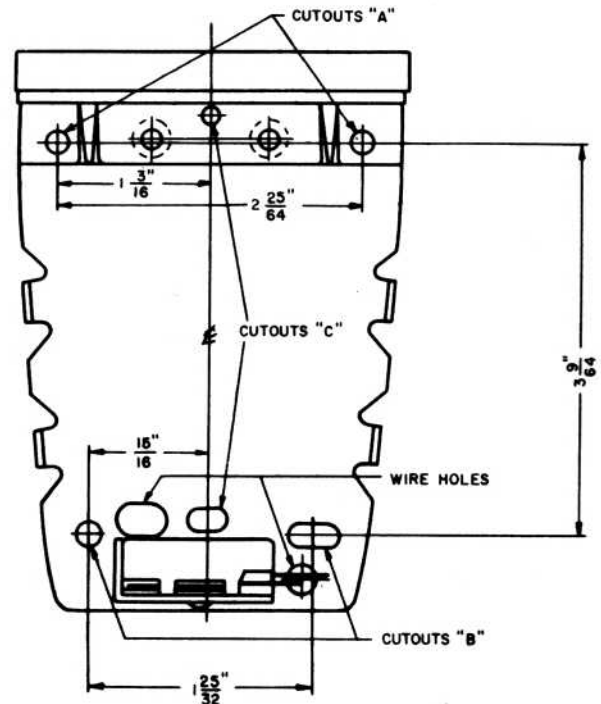


Figure 4. Baseplate Diagram.

number prefixed with the letters NB. A schematic diagram and a wiring diagram of the self-compensating type circuit are shown in Figure 9. Station wire must be connected to the transmission unit terminal strip as follows: red wire to terminal 15, green wire to terminal 16, and yellow wire (used for SATT or divided ringing only) to terminal 20. Ringer connections are described in related publications in the 473 series.

2.09 When the self-compensating Type 183 telephone is equipped with a SATT dial, the brown dial wire must be connected to transmission unit terminal 20.

Connection Instructions for a Manually Adjusted Type 183 Telephone

2.10 A manually adjusted Type 183 telephone has, stamped on the baseplate, a code number prefixed with the letter L. A schematic diagram and a wiring diagram of the manually adjusted Type 183 telephone are shown in Figure 10. Station wire must be connected to the transmission unit terminal strip as follows: red wire to terminal 15, green wire to terminal 16, and yellow wire to terminal 17. Ringer connections are described in related publications in the 473 series.

2.11 When a manually adjusted Type 183 telephone is equipped with a SATT dial, the white hookswitch wire must be removed from

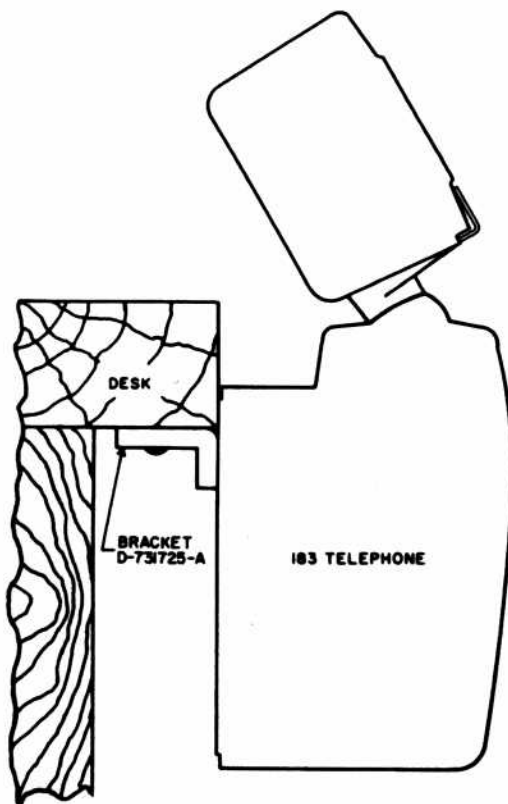


Figure 3. Special Desk-Top Mounting.

transmission unit terminal 17 and taped. The brown dial wire must then be connected to terminal 17.

### 3. LOOP COMPENSATION ADJUSTMENT

3.01 The manually adjusted Type 183 telephone has a rheostat which regulates the conductor loop resistance. The front cover must be removed to gain access to the rheostat. The rheostat is located at the bottom of the telephone. The rheostat setting can be changed by turning the slotted arrow with a small screwdriver. As the arrow is turned counterclockwise from 0 to 4, the rheostat inserts 0 to 400 ohms in series with the loop.

3.02 When the rheostat is at 0, as it should be for long cable loops, a switch operates to add a capacitor and a resistor into the sidetone balancing impedance, to match more nearly the capacitive impedance of a long cable loop.

3.03 On lines in a 48- or 50-volt exchange, except as specified in (a) and (b) below, set the rheostat at 2 if conductor loop resistance is 200 ohms or less, but if the conductor loop resistance is over 200 ohms, set the rheostat at 0.

- (a) If the station is connected directly to an open wire section over 200 ohms resistance, set the rheostat midway between 0 and 1.
- (b) If the station is on a loaded customer loop and is less than one loading section (for Type H loading, less than 6000 feet) from the nearest loading coil, set the rheostat midway between 0 and 1.

#### Party Line and Extension Telephones

3.04 If two or more A.E.Co. telephones with manually adjusted loop compensation (Type 80, Type 90, etc.) are used on one line with a Type 183 telephone, set the rheostat of each as if it were the only telephone on the line. If the Type 183 telephone is used on the same line with an entirely different make or model of telephone, set the Type 183 rheostat at 0; or, if one of the exceptions described in Paragraph 3.03(a) or 3.03(b) is applicable, set the rheostat midway between 0 and 1.

#### P-A-B-X, P-B-X, etc.

3.05 In a key system, P-B-X, or P-A-B-X, a Type 183 telephone may receive its transmitter current from either of two different 48- or 50-volt sources. Adjust the

rheostat for the current received on a trunk (outside) call as described in (a) through (c) below, except where the telephone is part of a P-B-X system which has a switchboard equipped with non-relay series lamp-line circuits, in which case the telephone set rheostat must be set at 0 (see Paragraph 3.06).

- (a) If the station loop plus trunk resistance is 200 ohms or less, set the rheostat at 2.
- (b) If the station loop plus trunk resistance is over 200 ohms, set the rheostat at 0.
- (c) If long-line equipment or a pulse repeater at the P-B-X or P-A-B-X supplies transmitter current on trunk calls, set the rheostat at 2.

3.06 If the central office or a P-B-X switchboard operates from 24 volts and has 100 ohms plus 100 ohms battery feed coils, or uses non-relay series lamp-line circuits, set the rheostat at 0; otherwise set the rheostat as described in Paragraph 3.05.

#### Line Current Adjustment

3.07 The adjustment procedures described in the preceding paragraphs of Part 3 are adequate for most installations. However, a few installations will require accurate line current adjustment to 60 milliamperes. This more accurate adjustment might be required where there has been a transmission complaint, or where it is suspected that the reason for a customer's difficulty in hearing over the telephone is caused by room noise at the telephone location. If sidetone caused by room noise is the problem, it might be desirable to adjust to a line current of 55 or 50 milliamperes. Adjustment can be made by following one of the methods described in Paragraphs 3.08 through 3.11.

3.08 The loop compensation adjustment can be made without central-office assistance by proceeding as follows:

- (1) Remove the front cover of the telephone and disconnect the red wire at transmission unit terminal 15.
- (2) Connect a milliammeter between the red lead and terminal 15 so that the milliammeter is in series with the line (Figure 5).
- (3) Take the handset off the hook and vary the loop compensator until the milliammeter reads 60 milliamperes.

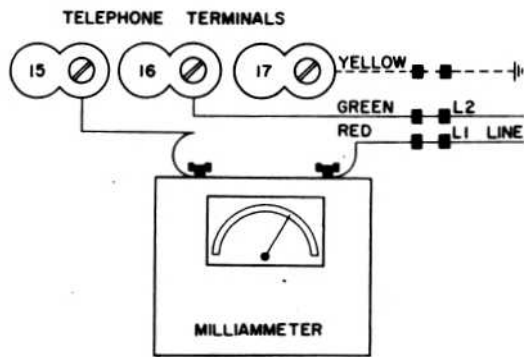


Figure 5. Milliammeter Connection.

- (4) Disconnect the milliammeter, reconnect the red wire to terminal 15, replace the housing, and test transmission.

3.09 When the testboard is equipped for line current measurement through the usual 200 ohms plus 200 ohms battery feed, dial the testboard and request line current measurements. The testboard attendant will announce current measurement readings. Vary the rheostat until the current is 60 milliamperes.

3.10 When the testboard is equipped for line resistance measurement, dial the testboard and request line resistance measurements. Short-circuit the line while the testboard attendant measures loop resistance. Using the measurement furnished by the testboard attendant, set the loop compensator according to Figure 6.

3.11 When the testboard is equipped for line voltage measurement, dial the testboard and request a line voltage measurement and stay on the line. The testboard will be connected to the calling line through a test distributor or distributing frame test shoe, and a voltmeter will be connected across the line. The adjustment procedures for the two most usual exchange situations encountered are:

- (a) Where battery is fed through 200 ohms plus 200 ohms, which is usual in 48- or 50- volt exchanges, vary the loop compensator until the testboard voltmeter reads 24 volts less than the central-office battery voltage.
- (b) Where battery is fed through 100 ohms plus 100 ohms, which is used in many 24-volt exchanges, vary the loop compensator until the testboard voltmeter reads 12 volts less than the central-office battery voltage.

## Polarity Check

3.12 On manually adjusted and self-compensating telephones used in SATT installations it is important to check that the party identity pulse is on the positive line. The polarity can be checked at either the ringer or at the telephone transmission unit terminals. An Automatic Electric Company Type 800 handtest telephone can be used to make this test. Place the handtest telephone C/R switch to the "C" position and clip one test lead to the ground terminal. Listen for a click as you touch the other lead to each line wire. The louder click, sometimes followed by dial tone, indicates the -line (ring). The + line (tip) usually will not sound completely dead, but will give a weaker click due to earth potential difference.

3.13 At divided-ringing party-line stations, clip one lead of an A.E.Co. handtest telephone to the ground wire. With the other clip, touch each line wire and listen for a click. The louder click indicates the negative line (ring).

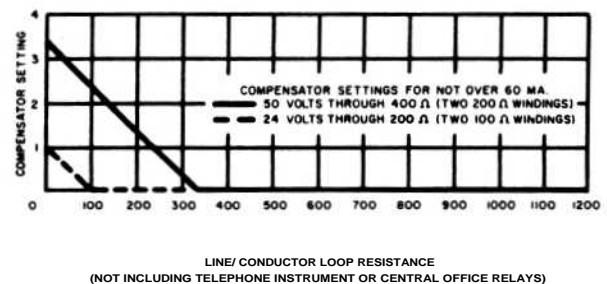


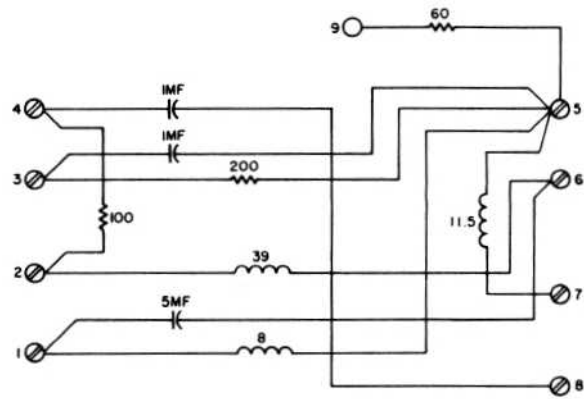
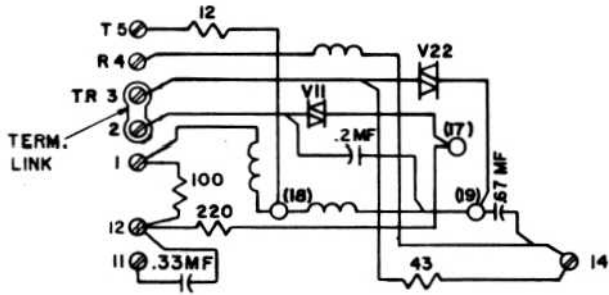
Figure 6. Line/Conductor Loop Resistance.

## 4. FIELD MAINTENANCE

4.01 Procedures for removing and replacing the dial fingerwheel are provided in the related publication in the 473 series. Schematic diagrams of transmission units are shown in Figure 7. The schematic diagrams can be used for continuity tests or resistance measurements. The sealed transmission unit is not to be repaired in the field. If the unit malfunctions, replace it with a new one.

### Hookswitch Wire Shield Removal

4.02 To protect the wires and springs of the movable hookswitch, a clear-plastic wire shield is provided (Figure 8). This shield assures that the wires and springs will not become tangled when the installer changes the hook position. Refer to Figure 8 and use the following steps to remove the wire shield.



7a. Transmission Unit Circuit Used in a Self-Compensating Type 183 Telephone.

7b. Transmission Unit Circuit Used in a Manually Adjusted Type 183 Telephone.

Figure 7. Transmission Units - Schematic Diagrams.

- (1) Move the top of the wire shield away from the bracket (Figure 8) to release the shield studs from the shield slots in the bracket.
- (2) Slide the wire shield up until it is clear of the retaining spring.
- (3) Position the wire shield as shown in Figure 8 and apply pressure simultaneously in directions denoted by arrows A and B. Slide the wire shield out from under the buffer.

#### Transmitter and Receiver Capsule Replacement

4.03 Self-compensating Type 183 telephones are equipped with Type 810 handsets only. The transmitter and receiver capsules of the Type 810 handset are not interchangeable with capsules from other handsets. For replacement of capsules and/or handset, refer to related publication in the 473 series.

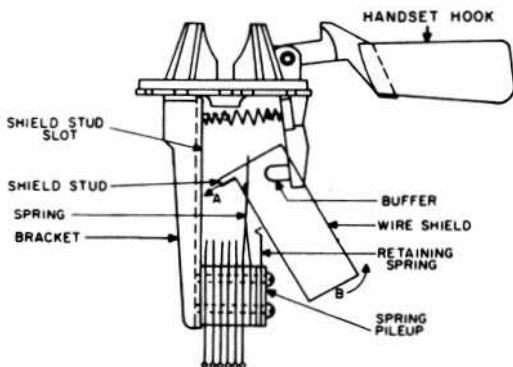


Figure 8. Hookswitch Wire Shield Removal.

4.04 Manually adjusted Type 183 telephones are equipped with Type 81 handsets only. The transmitter and receiver capsules of the Type 81 handset are not interchangeable with capsules from other handsets. For replacement of capsules, and/or handset refer to the related publication in 473 series.

#### Dial Assembly and Handset Hook Removal

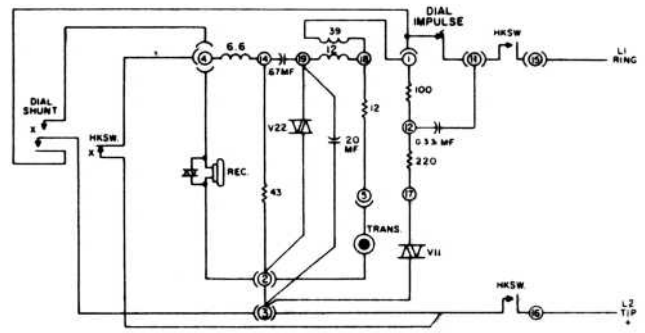
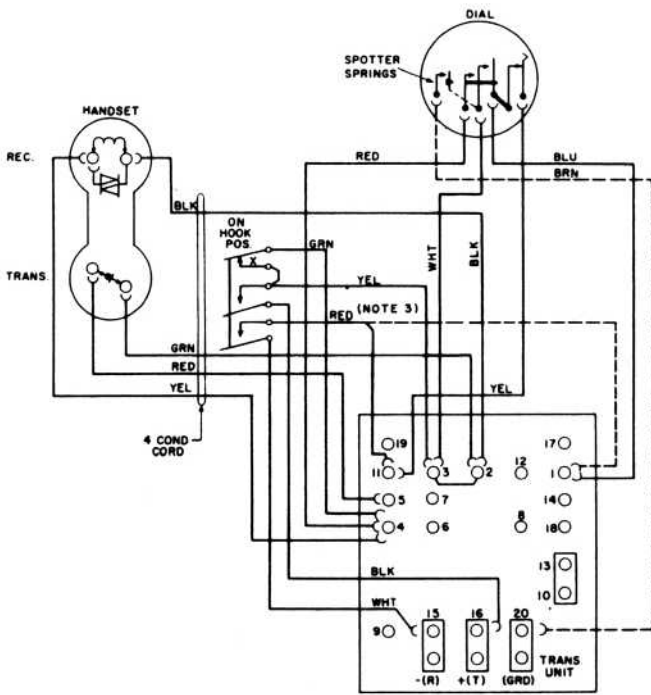
4.05 The dial and handset hook should be removed as follows (replacement can be accomplished by reversing the procedure):

- (1) Remove the front cover and disconnect all dial and hookswitch wires from the transmission unit terminal strip (Figure 9 or 10).
- (2) Loosen the Phillips-head lockscrew (Figure 2) sufficiently for the circular die-cast plate (on which the hookswitch is mounted) to be moved downward approximately 1/8-inch.
- (3) Turn the assembly to the left (facing the telephone set) until the handset hook is at a position where further turning is not possible. The circular plate will now be in a position where all of its slots mesh with similar size projections along the edge of the rigid die-cast structure.

4.06 Carefully withdraw the dial assembly and handset hook from the telephone housing.

#### Dial Replacement

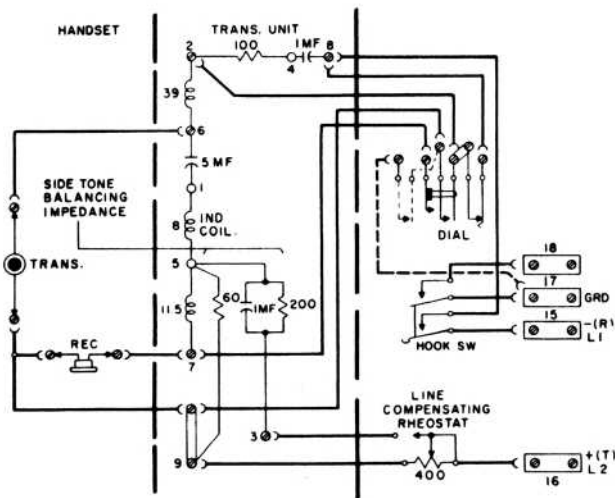
4.06 The dial can be replaced by performing the procedure following on page 8.



NOTE:  
CONTACTS TO SPEAK LAST 0  
MADE FIRST

H-54518, ISS. 6

Figure 9. Schematic and Wiring Diagram for the Self-Compensating Type 183 Telephone.



H-54476, ISS.7

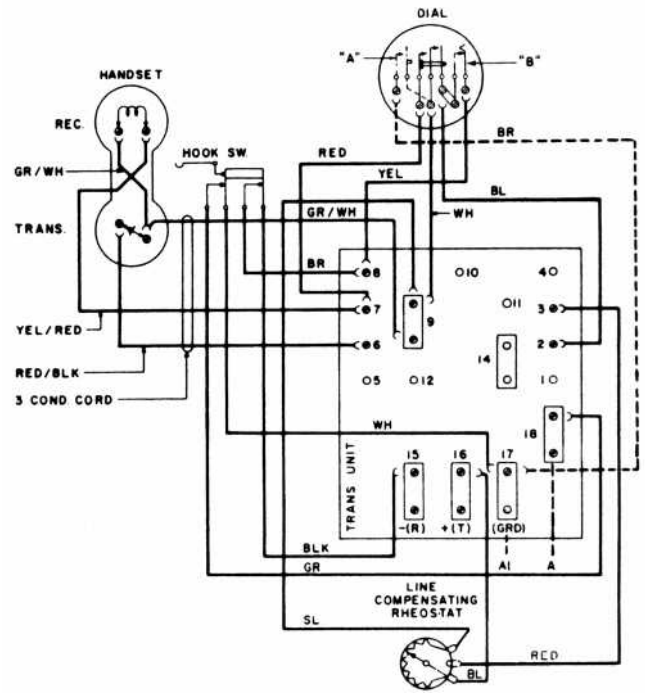


Figure 10. Schematic and Wiring Diagram for the Manually Adjusted Type 183 Telephone.



- (1) Remove the three dial-mounting screws located at the rear of the dial housing assembly.
- (2) Lift the dial assembly and mounting bracket from the dial housing.
- (3) Remove the three mounting bracket screws and remove the bracket.
- (4) Loosen the terminal screws on the dial spring assembly and remove the dial wires.

NOTE: The dial wires should not be removed from the transmission unit unless the wires are damaged.

- (5) Connect the dial wires to the new dial (Figures 9 or 10).
- (6) Fasten the dial mounting bracket (removed from the old dial) to the new dial.
- (7) Insert the dial and mounting bracket into the dial housing. Position the last finger hole (the one nearest the finger stop) so that it is exactly at the bottom of the dial housing.
- (8) Insert the three dial mounting screws through the rear of the dial, housing and tighten to the dial housing.

4.07 If the dial is replaced by a dial blank, disconnect the dial wires at the dial assembly and:

- (1) Connect the YEL and BLU dial wires to dial blank terminal 2.
- (2) Connect the RED dial wire to dial blank terminal 1.
- (3) Connect the WHT dial wire to dial blank terminal 3.
- (4) Fasten the dial blank to dial cup.

#### Radio Frequency Suppression

4.08 Effective suppression of radio signals can be obtained by connecting three 0.03 mfd ceramic capacitors in telephones with a self-compensating network and one 0.03 mfd capacitor in telephones that are manually adjusted.

4.09 At the transmission unit of self-compensating telephones (Figure 9), connect the capacitors between terminals: 2 and 4, 3 and 5, and 5 and 1.

4.10 For manually adjusted telephones (Figure 10), connect a 0.03 mfd capacitor across terminals 6 and 9; or, across the transmitter terminals in the handset, whichever is more convenient.

4.11 A suitable capacitor is D-68782-AU ceramic 0.03 mfd (+/-20%) 500 WV. The leads should be insulated to within one-half inch of the ends with 0.042 inch I.D. sleeving, D-542410-A.