TYPE 980 STYLELINE® TELEPHONE SET SHOP PROCEDURE

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1. GENERAL

1.01 This section provides the shop procedure for the Type 980 GTE Automatic Electric STYLELINE® Telephone Set.

1.02 The shop procedure covers disassembly, cleaning, reassembly, lubrication, adjustment, component parts, replacement parts, and coding information for the Type 980 telephone.

1.03 This section is reissued to provide changes to Tables 1 through 5, Figures 3, 4 and 7, to update the text, and to add Figures 8 and 9 for the Type 980 telephone. Marginal arrows are used to identify the new material. Remove the previous issue of this section from the binder or microfiche file and replace it with this issue.

2. MAJOR COMPONENT IDENTIFICATION

Type 980 Handset

2.01 The component parts and part assemblies that comprise the Type 980 Dial-In-Handset or Touch Calling Handset are listed in Table 1 and are identified by corresponding item numbers in Figures 1 through 4.

2.02 To determine the part number for any component part of the handset, identify the part required pictorially from Figures 1 through 4. Obtain the item number from the respective figure and, by the item number, locate the part number and the description in Table 1. For parts affected by color, read Table 1 horizontally and select the proper suffix letters under the appropriate column and add the suffix letters to the part number.

Type 981 and 982 Bases

2.03 The component parts and part assemblies that comprise the Types 981 (desk base) and/or 982 (wall base) are listed in disassembly sequence in Table 2 and are identified by corresponding item numbers in Figures 5 and 6. The "Used On" column at the extreme right side of Table 2 indicates the type of base that the assembly part is used on.

2.04 To determine the part number for any component of either type of base, identify the part required from Figures 5 and 6. Obtain the item number from the respective figure and, by the item number, locate the part number and description in Table 2. For parts affected by color, read Table 2 horizontally and select the proper suffix letters under the appropriate column and add the suffix letters to the part number.

2.05 A receiver amplifier, Proctor and Associates Co., P-0446 (420611) can be installed in the rotary dial handset to boost the output level of the receiver for users with hearing impairments. This amplifier assembly consists of a printed wiring card, slide bar potentiometer, screws, and washers. Installation procedures are incorporated into the applicable paragraphs. There is no current provision to install a receiver amplifier in a Touch Calling handset.

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3. WIRING DIAGRAM

3.01 The wiring diagram for the STYLELINE telephones and the associated ringing tables are shown in Figure 7. The schematic wiring diagrams are shown in Figures 8 and 9.

4. SEPARATION OF HANDSET CORD FROM HANDSET AND BASE

4.01 To remove the handset cord from the handset and base, insert the point of the fingerplate removal tool or the tip of a small screwdriver in the keyhole slot underneath the cord slot and push the thin metal tab on the plug-in connector toward the connector. Simultaneously, pull on the cord until the connector pulls out of the cord slot.

5. AUTOMATIC NUMBER IDENTIFICATION

5.01 On installations where the Type 981 and 982 telephones are equipped with the HB-1021-A or -B transmission network and the Type 46 ringer with ANI leads, a simple wiring change provides ANI. Move the blue ANI lead from terminal 12 to terminal 21 and the capacitor lead from terminal 15 to terminal 6.

5.02 In telephones where the Type 46 ringer is omitted from the base, a D-284686-C kit consisting of a D-284686-B coil and a 6-40 x 3/16 inch panhead screw (D-762048-B) must be used to provide an inductive mark for ANI operation. The coil can be mounted in any of the three vacant ringer mounting holes.

5.03 Refer to Figure 10 and use the following procedure to mount the inductor kit in the Type 981 or 982 base.

(a) Remove the housing from the Type 981 or 982 STYLELINE base. (Refer to part 8.)
(b) Mount the inductor using the screw provided.
(c) Connect the black lead to terminal 21 of the terminal block.
(d) Connect the red lead to terminal 16 of the terminal block and tape and store the slate lead.
(e) Replace the housing as instructed in part 9.

6. DISASSEMBLING TYPE 980 HANDSET

6.01 Care must be taken when removing all screws from the mounting posts of the handset to prevent stripping out the plastic threads.

Dial-in-Handset

6.02 The following procedures are for disassembling the Type 980 Dial-in-Handset. All references to the left-hand side, right-hand side, upper or lower, receiver or transmitter side are in relation to the handsets as shown in Figures 1 and 3. For disassembly procedures for the Type 980 Touch Calling handset, refer to paragraph 6.11.

6.03 Remove the number card cover and designation strip as follows:

(a) Insert a fingerplate removal tool or equivalent in the hole in the number card cover.
(b) Bow the number card cover upward as little as necessary to release the tab by applying pressure toward the center of the cover.
(c) Pull the number card cover out and remove the designation strip.

6.04 Remove the shell cover from the handset as follows:

(a) Loosen the two screws located behind the designation strip (previously removed).

NOTE: These screws are captive screws and must not be completely removed from the handset. They must be loosened sufficiently to free the shell cover from the handset only.

(b) Gently pull the shell cover from the handset, starting with the top end of the shell cover (rear of the receiver portion).

NOTE: When The rotary dial handset is equipped with a P-0446 receiver amplifier, the slide bar potentiometer is free. Be careful not to break the electrical connections between the potentiometer and card (Figure 11).

6.05 Remove the transmission network as follows:

(a) Fish out the red, green and blue leads extending from the right-hand side of the transmission network and leading to the transmitter cup.
(b) Loosen the three terminal screws located on the top of the transmitter cup and remove the red, green and blue leads from the transmission network. When the transmission network is equipped with a receiver amplifier, remove the green receiver amplifier lead.
(c) Fish out the pink and white leads extending from the left-hand side of the transmission network and remove them from the dial pulse and shunt spring assembly.
(d) Remove the two screws that are used to mount the transmission network.
(e) Carefully lift the transmission network upward and move it slightly to the right-hand side of the handset to expose the terminals of the receiver capsule.
(f) Loosen the right-hand side receiver capsule terminal screw and disconnect the black lead extending from the transmission network. When the transmission network is equipped with a receiver amplifier, remove the black receiver amplifier lead.
(g) Loosen the left-hand side receiver capsule terminal screw and disconnect the yellow lead extending from the transmission network. When the transmission network is equipped with a receiver amplifier, remove

the yellow and white receiver amplifier leads.

(h) Lift the transmission network and its extending leads from the handset.

6.06 Remove the receiver capsule from the handset as follows:

(a) Remove the four screws that retain the receiver mounting ring.
(b) Remove the receiver mounting ring from the front housing.
(c) Lift the receiver capsule out of the handset.

NOTE: Leave the receiver gaskets mounted in the handset unless they require replacement. The receiver gaskets are glued to the housing of the handset.

6.07 Remove the transmitter capsule from the front housing as follows:

(a) Fish out the black and white leads (both leads are black on current models) that extend from the right-hand side of the transmitter cup (terminals 1 and 2).

NOTE: The leads are terminated on the back side of the electroluminescent dial plate when this feature is a component of the handset, and must be disconnected at this time. When the nonlighted dial is used, these leads remain insulated and unterminated.

(b) Remove the two screws that are used to mount the right transmitter cup mounting bracket to two plastic posts in the front housing.
(c) Remove the right transmitter cup mounting bracket from the front housing.
(d) Remove the two screws that are used to mount the left transmitter cup mounting bracket to the two plastic posts in the front housing.
(e) Remove the left transmitter cup mounting bracket from the front housing.
(f) Lift the plastic transmitter cup upward and position it out of the way of the transmitter.

NOTE: The plastic transmitter cup cannot be removed from the front housing at this time because it is attached by soldered terminals to the recall switch assembly.

(g) Lift the transmitter capsule from the front housing.
(h) Lift the transmitter gasket from the front housing.

6.08 Remove the recall switch assembly (Inductor-Capacitor Touch Calling Unit (LCTCU) assembly, D-840007-A) and recall pushbutton (doeskin gray) or the recall switch assembly (Integrated Circuit Touch Calling Unit (ICTCU) assembly D-840007-C) and recall pushbutton (dark gray) from the front housing as follows:

(a) Loosen the upper terminal screw of the dial pulse and shunt spring assembly, and remove the orange lead.
(b) Loosen the center terminal screw of the dial pulse and shunt spring assembly and remove the brown lead.
(c) Remove the screw that is used to mount the recall switch assembly to the plastic post and extension stud on the front housing.
(d) Lift the recall switch assembly and transmitter cup together from the front housing.

NOTE: When it is necessary to replace either the transmitter cup or the recall switch assembly, a low wattage soldering iron must be used to disconnect the transmitter cup from the recall switch assembly. These two items are connected by soldered terminations.

(e) Lift the plastic recall pushbutton out of the rear of the front housing.

6.09 Remove the resistor-capacitor assembly from the front housing as follows:

(a) Loosen the upper terminal screw of the dial pulse and shunt spring assembly and remove the brown lead.
(b) Loosen the lower terminal screw of the dial pulse and shunt spring assembly and remove the yellow lead.
(c) Lift the resistor-capacitor assembly from the front housing.

6.10 Remove the dial assembly from the front housing, as follows:

(a) Remove the three dial assembly mounting screws that retain the dial assembly to the three plastic posts in the front housing.
(b) Lift the dial assembly from the rear of the front housing. If the transmission network is equipped with a receiver amplifier, also remove the transmission network.

Touch Calling Handset

6.11 The following procedures are for disassembling the Type 980 Touch Calling Handset. All references to the left-hand side, right-hand side, receiver (upper) side, and transmitter (lower) side are in relation to the handsets as shown in Figures 2 and 4.

6.12 Remove the number card cover and designation strip as follows:

(a) Insert a fingerplate removal tool or equivalent in the hole of the number card cover.
(b) Bow the number card upward and apply pressure toward the center of the cover to release the tab.

(c) Pull the number card cover out and remove the designation strip.

6.13 Remove the shell cover from the handset as follows:

(a) Loosen the two screws located behind the designation strip (previously removed).

NOTE: These screws are captive screws and must not be completely removed from the handset. They must be loosened sufficiently to free the shell cover from the handset only.

(b) Gently pull the shell cover from the handset, starting with the top end of the shell cover (rear of the receiver portion).

6.14 Remove the transmission network as follows:

(a) Remove the two screws retaining the transmission network (mounted above the receiver).
(b) Loosen the three terminal screws on top of the transmission network and remove the three leads from the Touch Calling Unit (TCU).
(c) For the LCTCU, disconnect the blue and green leads of the transmission network card from the transmitter cup and wire assembly. For the ICTCU, disconnect the blue lead of the transmission network card from the transmitter cup and wire assembly and the green lead from the plastic (floating) connector block.
(d) Disconnect the black lead of the transmission network from the right receiver capsule terminal screw.

6.15 Remove the receiver capsule from the handset as follows:

(a) For the LCTCU, disconnect the black and blue leads of the TCU from the receiver capsule. For the ICTCU, disconnect the blue lead of the TCU and the loose black lead of the transmitter cup and wire assembly from the receiver capsule.
(b) Remove the four screws that retain the receiver mounting ring.
(c) Grasp the receiver capsule and lift it out, removing the receiver capsule and mounting ring together.

NOTE: Leave the receiver gasket glued to the front housing unless they require replacement.

6.16 Remove the TCU designation mat and face plate from the front housing as follows:

(a) Remove the four screws retaining the TCU.
(b) For the LCTCU, disconnect the pink lead of the TCU from the transmitter cup and wire assembly. For the ICTCU, disconnect the pink lead of the TCU from the transmitter cup and wire assembly. The black lead at the plastic (floating) connector has been disconnected per paragraph 6.14(d).
(c) Disconnect the red lead of the TCU from the left transmitter cup bracket assembly.
(d) Disconnect the brown lead of the TCU from the right transmitter cup bracket assembly.
(e) Lift the TCU from the front housing.
(f) Remove the ABC designation mat and recall pushbutton.
(g) Remove the faceplate.

6.17 Remove the transmitter capsule from the front housing as follows:

(a) Disconnect the green lead of the transmitter cup assembly from the left transmitter bracket assembly.
(b) Disconnect the red lead of the transmitter cup assembly from the right transmitter bracket assembly.
(c) Remove the four screws retaining the left and right transmitter cup brackets.
(d) Lift out the two transmitter cup brackets.
(e) Remove the transmitter cup and wire assembly.
(f) Remove the transmitter capsule.
(g) Remove the transmitter gasket.

Cleaning and Inspection

6.18 The shell cover and front handset housing must be wiped and brushed free of dust and dirt particles. A mild, nonabrasive soap solution must be used to clean any stains or grime from the plastic. The shell cover and front handset housing must be wiped completely dry inside and out and then buffed to a luster. Inspect both components for cracks or breaks. Discard and replace any defective component.

6.19 All component parts must be wiped clean. Be careful during this process not to break or distort any components. All components must be thoroughly checked for obvious defects. It is suggested that a nonmetallic, 1-inch flat brush be used to clean out any accumulated dust or foreign particles from the components, paying particular attention to all indentations and pockets built into the components. All solder points and terminals must be checked for proper and tight connection. Check for frayed or poorly insulated leads and replace as required. Replace any colored components that do not clean up to their original state.

7. REASSEMBLING TYPE 980 HANDSET

7.01 When reassembling the Type 980 Handset, do not overtighten the mounting screws secured into the plastic posts because the posts may crack or the threads may strip. For reassembling the Type 980 Touch Calling Handset, refer to paragraph 7.11.

Dial-in-Handset

7.02 Assemble the front housing and the dial assembly as follows:

(a) Place the dial assembly into the front housing so the three holes in the dial mounting plate line up with the three plastic mounting posts of the front housing.

When a P-0446 receiver amplifier is to be installed, place two No. 4 fiber washers and the card of the amplifier over the two dial mounting holes, as shown in Figure 11, and secure with the two 4-40x5/16-inch screws furnished with the receiver amplifier.

(b) Secure the dial assembly to the plastic mounting posts using the dial assembly mounting screws.

7.03 Replace the resistor-capacitor assembly into the front housing as follows:

(a) Loosen the lower terminal screw of the dial pulse and shunt spring assembly and connect the yellow lead extending from the resistor-capacitor assembly.
(b) Loosen the upper terminal screw of the dial pulse and shunt spring assembly and connect the brown lead extending from the resistor-capacitor assembly.
(c) Extend the resistor-capacitor assembly toward the top left of the receiver location on the left-hand side of the front housing.

7.04 Replace the recall pushbutton and recall switch assembly into the front housing as follows:

(a) Place the plastic recall pushbutton into the hole provided just below the dial assembly mounting hole.

NOTE: Make certain that the front curvature of the recall pushbutton conforms to the curvature of the front handset housing.

(b) Place the recall switch assembly in the front housing by locating the recall switch assembly mounting bracket over the plastic mounting stud protruding into the upper bracket hole. Position the recall switch assembly so the springs and spring tabs extend over the rear of the recall pushbutton and the lower screw hole in the mounting bracket lines up with the hole in the plastic mounting post.
(c) Secure the recall switch assembly bracket to its mounting post with a screw.
(d) Loosen the center terminal screw of the dial pulse and shunt spring assembly and connect the brown lead extending from the recall switch assembly.
(e) Loosen the upper terminal screw of the dial pulse and shunt spring assembly and connect the orange lead extending from the recall switch assembly. Tighten the terminal screw, making certain that the brown lead extending from the resistor-capacitor assembly remains attached to this terminal also.

NOTE: If the plastic transmitter cup is not attached by soldered terminals to the red and green leads of the recall switch assembly, the interconnection must be made at this time. The red lead that extends from the upper top terminal of the recall switch assembly must be soldered to terminal 4 on the transmitter cup. The green lead that extends from the lower top terminal of the recall switch assembly must be soldered to terminal 3 on the transmitter cup.

7.05 Replace the transmitter capsule and transmitter cup into the front housing as follows:

(a) Place the transmitter gasket in the encircling ridge of the lower or transmitter side of the front housing. The wide flange of the gasket faces upward.
(b) Replace the transmitter capsule into the front housing directly on top of, and centered on, the transmitter gasket. The contact point of the transmitter capsule faces upward.
(c) Place the transmitter cup, which is attached by soldered leads to the recall switch assembly, over the transmitter capsule with the contact point of the transmitter capsule extending into the elongated slot in the metal contact strip in the center of the opening of the transmitter cup.

NOTE: The transmitter cup is spring loaded upward by the metal contact strip in the center of the opening of the transmitter cup and therefore will be difficult to hold in position during replacement of the right and left transmitter cup mounting brackets. The transmitter cup must be carefully held depressed in the proper location while replacing the right and left transmitter cup mounting brackets.

(d) Replace the right transmitter cup mounting bracket by locating the lower portion of the bracket in the slot in the right side of the plastic transmitter cup. Keep the tab of the bracket on the upper side of the upper transmitter cup right support brace, just below the GTE Automatic Electric trademark. Do not locate the tab of the bracket between the two right transmitter cup support braces.
(e) Secure the top screw of the right transmitter cup mounting bracket into the upper plastic post of the front housing on the right side of the transmitter capsule.
(f) Replace the left transmitter cup mounting bracket by locating the lower position of the bracket into the slot in the left side of the plastic transmitter cup. Keep the tab of the bracket on the upper side of the upper transmitter cup left support brace. Do not locate the tab of the bracket between the two left transmitter cup support braces.
(g) Secure the top screw of the left transmitter cup mounting bracket into the upper plastic post of the handset housing or the left side of the transmitter capsule.
(h) Grasp the front housing and plastic transmitter cup between the thumb and forefinger and press together until lower screw holes in both mounting brackets align with the housing mounting posts.
(i) Hold firmly in this position. Insert and tighten both mounting bracket screws.
(j) The black and white leads extending from terminals 1 and 2 on the right side of the transmitter cup are used

for the lighted dials on handsets so equipped. If the handset is equipped with the lighted dial, these leads should be plugged into the two terminals on the rear of the dial assembly at this time.

NOTE: Either lead may be plugged into either terminal because ac current is used for the electroluminescent disk.

When the dial is not equipped with the lighted dial, these leads must be run along the inside right-hand side of the front housing out of the way of the other components and left insulated and stored.

7.06 Replace the receiver capsule in the handset as follows:

If either of the two receiver gaskets has been removed, replace them with new self-sticking gaskets. Locate the new gaskets around the receiver holes in the front housing and press the gaskets down firmly.

(b) Place the receiver capsule in the front housing on top of the gaskets with the embossed locating tab facing the left-hand side of the front housing.

(c) Place the receiver mounting ring over the receiver capsule with the locating notch on the left side.

(d) Secure the receiver capsule and mounting ring with four screws.

NOTE: If a P-0446 receiver amplifier is to be installed, a slot, 1-9/16 inches by 1/8 inch must be cut in the handset front housing to accommodate the slide bar potentiometer.

7.07 Replace the transmission card assembly in the front housing as follows:

(a) Place the resistor capacitor assembly in the space between the left-hand side of the receiver and the left inner wall of the handset housing with the mounting holes toward the transmitter end of the housing.

(b) Connect the yellow lead to the left-hand screw terminal on the back of the receiver capsule. If the receiver amplifier is being installed, place the white amplifier lead on this terminal first, followed by a No. 6 x 1/32-inch-thick fiber washer, followed by the yellow transmission unit and yellow amplifier leads. This pileup is secured to the receiver terminal with a 4-40x1/4-inch nylon screw furnished with the receiver amplifier (Figure 11).

(c) Connect the black lead to the right-hand screw terminal on the back of the receiver capsule. If the receiver amplifier is being installed, connect the black lead from the amplifier to this terminal.

(d) Extend the red, green, and blue leads that are soldered to the transmission network out the right-hand side of the transmission network. Extend the pink and white leads soldered to the transmission network out the left-hand side of the transmission network.

(e) Using two screws, mount the transmission network to the two high plastic posts directly to the rear of the receiver capsule.

(f) Connect the spade terminal end of the soldered blue lead extending from the right side of the transmission network to the right-hand screw terminal of the plastic transmitter cup, over the yellow lead which was attached previously to this terminal.

(g) Connect the spade-terminal end of the soldered green lead extending from the right side of the transmission network to the center screw terminal of the plastic transmitter cup. If the receiver amplifier is being installed, connect the green lead from the amplifier to this terminal.

(h) Connect the spade terminal end of the soldered red lead extending from the right side of the transmission network to the left-hand screw terminal of the plastic transmitter cup.

(i) Connect the spade terminal end of the soldered pink lead extending from the left side of the transmission network to the lower screw terminal of the dial pulse and shunt spring assembly, on top of the yellow lead attached to this terminal.

(j) Connect the spade terminal end of the soldered white lead extending from the left side of the transmission network to the center screw terminal of the dial pulse and shunt spring assembly, on top of the brown lead attached to this terminal.

(k) Locate the slack portions of the red, green, blue, pink and white leads, down into the handset housing, along the right and left sides, respectively, and out of the way of any of the working dial components.

7.08 Assemble the shell cover and the front housing as follows:

(a) Hold the front housing in the left hand with the dial face in the palm. If the receiver amplifier is being installed, place the slide bar potentiometer on the receiver.

(b) Pick up the shell cover in the right hand, and insert the locking tabs of the shell cover into the locking notches in the lower side of the front housing. Tilt the shell cover toward the front housing, making certain that the locking tabs of the shell cover remain engaged with the front housing.

(c) Turn the assembled handset over and secure the front housing to the shell cover with the two captive screws in the designation strip slot.

7.09 Insert the correct size plug end of the handset retractile cord into the cord opening at the bottom of the handset. Be certain to insert the plug with the external metal locking tab facing the keyhole slot above the cord entry opening.

7.10 Replace the designation strip and number card cover as follows:

(a) Insert the designation strip into the slot provided above the dial face in the handset. Bow the designation strip slightly and insert equally under each edge of the slot.

(b) Grasp the plastic number card cover between the right thumb and forefinger and insert the left edge lip of the number card cover into the slot over the designation strip. With the right forefinger, bow the number card cover as little as possible and simultaneously push downward on the right edge of the cover until its right edge locks into the slot in the handset.

Touch Calling Handset

7.11 Replace the transmitter gasket, capsule, transmitter cup, and wire assembly as follows:

(a) Place the transmitter gasket in the encircling ridge of the lower or transmitter side of the front housing. The wide flange of the gasket faces upward.

(b) Replace the transmitter capsule into the front housing of the handset directly on top of, and centered on, the transmitter gasket. The contact point of the transmitter capsule faces upward.

(c) Place the transmitter cup and wire assembly over the transmitter capsule.

(d) Secure the transmitter capsule, cup and wire assembly by installing the right and left transmitter cup brackets with four screws.

NOTE: Be sure the transmitter capsule is seated properly so that the central contact point of the transmitter capsule is making contact with the transmitter cup and wire assembly.

(e) Connect the green lead of the transmitter cup assembly to the left transmitter bracket assembly screw terminal.

(f) Connect the red lead of the transmitter cup assembly to the right transmitter bracket assembly screw terminal.

(g) Connect the yellow lead from the transmitter cup and wire assembly to the right-hand screw terminal of the transmitter cup and wire assembly.

7.12 Replace the TCU and associated parts as follows:

(a) Insert the recall pushbutton in the ABC designation mat.

NOTE: Make certain that the curvature of the recall pushbutton conforms to the curvature of the faceplate before assembling.

(b) Place the faceplate with the recall pushbutton hole toward the lower side of the handset (shiny side up).

(c) Place the ABC designation mat with the recall pushbutton (previously inserted) on top of the faceplate.

(d) Secure the TCU to the front housing be inserting two screws through the transmitter cup brackets and two screws into the plastic posts just below the receiver.

(e) Connect the pink lead from the TCU to the left-hand screw terminal of the transmitter cup and wire assembly.

(f) Connect the red lead from the TCU to the left transmitter bracket assembly screw terminal.

(g) Connect the brown lead from the TCU to the right transmitter bracket assembly screw terminal.

7.13 To replace the receiver capsule, proceed as follows:

(a) If either of the two receiver gaskets have been removed, replace them with new self-sticking gaskets. Locate the new gaskets around the receiver holes in the front housing and press the gaskets down firmly.

(b) Place the receiver capsule in the front housing on top of the gaskets with the embossed locating tab facing the left-hand side of the front housing.

(c) Place the receiver mounting ring over the receiver capsule with the locating notch on the left side.

(d) Secure the receiver capsule by using four screws through the corners of the receiver mounting ring.

(e) For the LCTCU, connect the black lead from the TCU to the right-hand screw terminal of the receiver capsule. For the ICTCU, connect one end of the loose black lead from the right-hand screw terminal of the receiver capsule. Connect the remaining end of the black lead to the center screw terminal of the transmitter cup and wire assembly.

(f) Connect the blue lead from the TCU to the left-hand screw terminal of the receiver capsule.

7.14 To replace the transmission unit, proceed as follows:

(a) Connect the black lead from the transmission unit to the right-hand screw terminal of the receiver capsule.

(b) For the LCTCU, connect the green lead from the transmission unit to the center screw terminal of the transmitter cup and wire assembly. For the ICTCU, connect the green lead from the transmission network to the black lead from the TCU via the plastic (floating) connector block.

(c) Hold the transmission network component side up. Starting from left to right, connect the gray, green and orange wires from the TCU to the screw terminals located on the transmission network.

(d) Connect the blue lead from the transmission network to the right-hand screw terminal of the transmitter cup and wire assembly.

(e) Turn the transmission network over and mount it on top of the receiver capsule, putting two screws into the plastic posts.

7.15 Check all wiring to be sure the shell cover can be closed without damaging or cutting any wires.

7.16 To assemble the shell cover to the front housing, proceed as follows:

(a) Hold the front housing in the left hand with the TCU face down.
(b) With the shell cover in the right hand, insert the locking tabs of the shell cover into the locking notches in the lower side of the front housing. Tilt the shell cover toward the front housing, making certain that the locking tabs of the shell cover remain engaged with the front housing. (This can best be observed by viewing through the handset cord entry hole in the lower portion of the handset.)
(c) Turn the assembled handset over and secure the front housing to the shell cover by means of the two captive screws in the designation strip slot.

7.17 Attach the handset cord to the handset by inserting the correct size plug end of the cord into the cord opening at the bottom of the handset. Be certain to insert the plug with the external metal locking tab facing the keyhole slot above the cord entry opening.

7.18 To replace the designation strip and number card cover, proceed as follows:

(a) Insert the designation strip into the slot provided above the TCU. Bow the designation strip slightly and insert it equally under each edge of the slot.
(b) Grasp the plastic number card cover between the right thumb and forefinger and insert the left edge lip of the number card cover into the slot over the designation strip. With the right forefinger, bow the number card cover as little as possible and simultaneously push downward on the right edge of the cover until its right edge locks into the slot in the handset.

Lubrication and Adjustments

7.19 Lubrication or adjustment requirements are only necessary for the dial and hookswitch assembly and are covered in Part 9 of this practice.

Hearing Aid Coupler Installation

7.20 A conversion kit, HH-880049-1, is required to make this conversion. This kit consists of the following:

(a) Special receiver - one required.
(b) Coil assembly (wires included) - one required.
(c) Mounting brackets - four required (part No. HD-731094-A, Issue 1).
(d) Transmission network mounting screws - two required (part No. HD-765400-PP08).
(e) Transmission network mounting bushings - two required.

7.21 Perform the following procedure to make the conversion:

(a) Remove the handset shell.
(b) Remove the transmission network but leave it connected and, on rotary dial handsets, retain its mounting screws.
(c) Remove the existing receiver and its mounting bracket but retain the four screws.
(d) Place the coil assembly around the special receiver and put it in the handset, orienting the terminals toward the side of the transmission network.
(e) Use four mounting brackets and the four screws of (b) to hold the coil and receiver in place.
(f) Wire the coil assembly in parallel with the receiver by terminating the coil leads, in addition to restoring the previous wiring at the two terminals on the back of the receiver.
(g) Remount the transmission network. On the rotary dial handset, use the screws removed during disassembly. On Touch Calling handsets, use the two mounting bushings and the two extra-long screws to remount and properly space the transmission network.

8. DISASSEMBLING DESK-TYPE 981 AND WALL-TYPE 982 BASES

Mechanical Variation

8.01 The desk base and the wall base have variations from each other affecting the disassembly and reassembly procedures. The variations in the disassembly procedure are indicated in paragraphs 8.02 (desk base) and 8.03 (wall base).

NOTE: In the following procedures, all references to the left-hand side, right-hand side, top (upper) side, and bottom (lower) side are in relation to the bases as shown in Figures 5 and 6.

8.02 Refer to Figure 5 and disassemble the desk base as follows:

(a) Remove the line cord from the desk base by turning the base over in the palm of the left hand. Insert a fingerplate removal tool or equivalent into the line cord retainer clip hole.
(b) Depress the retainer clip slightly and simultaneously slide the clip to the left.
(c) Remove the line cord plug from the receptacle by inserting the fingerplate removal tool into one of the three slots located alongside the plug and push the retaining spring clip toward the plug. Grasp the line cord and carefully remove the plug from the receptacle while pushing on the retaining spring clip.
(d) Loosen the captive screw, located on the underside of the desk base, directly above the left foot.
(e) Tilt the base upward and off of the desk housing.
(f) Remove the bearing pin and hookswitch actuator assembly from the desk housing by holding the housing bottom side up in the palm of the left hand. Pull the plastic hookswitch actuator upward and back toward the bottom of the desk housing until the

bearing pin releases from the locking tabs in the housing. Remove the hookswitch actuator and bearing pin assembly from the desk housing and slip the bearing pin out of the base of the hookswitch actuator.

8.03 The specific disassembly procedure for the wall base is as follows (Figure 6):

(a) Remove the wall housing from the base by depressing the housing retainer spring through the slot in the bottom of the wall housing.
(b) Lift the wall housing upward from the bottom side of the base.
(c) Place the wall base on the work table as shown in Figure 6.
(d) Remove the housing retainer spring screw and spring from the base.
(e) Remove the hookswitch plunger and pin assembly from the wall housing by holding the housing bottom side up. Hold the plastic plunger up out of the T-shaped cutout of the housing and force the plunger up toward the top of the housing until the pin is released from the locking tabs. Remove the plunger and pin assembly from the wall housing and slip the pin out of the plunger.

8.04 The following procedures in this part are identical for either the desk base or the wall base. (See Figures 5 and 6, respectively.)

8.05 Remove the lower connector and wire assembly (handset retractile cord connector) from the base as follows:

(a) Disconnect the spade terminal ends of the white, black, red, green, and yellow leads extending from the soldered terminals of the connector, to the terminal strip assembly.
(b) Insert the tip of a broad tipped screwdriver into the cutout on the bottom side of the base, and gently, so that the contacts or the plastic of the connector do not become damaged, pry the connector and wire assembly out of the base.

8.06 Remove the upper left side connector and wire assembly (line cord connector) from the base, as follows:

(a) Disconnect the spade terminal ends of the white, black, red, green, and yellow leads extending from the soldered terminals of the connector to the terminal strip assembly.
(b) Insert the tip of the broad-tipped screwdriver into the cutout on the underside of the base and gently, so that the contacts or the plastic of the connector do not become damaged, push the connector and wire assembly out of the base.

8.07 Remove the hookswitch assembly from the base as follows:

(a) Disconnect the spade terminal ends of the orange, white, red, black, yellow, green, and brown leads which extend from the soldered terminals of the hookswitch assembly to the terminal strip assembly.
(b) Remove the two hookswitch assembly screws from the base.
(c) Lift out the hookswitch assembly.

8.08 Remove the ringer capacitor from the terminal strip assembly.

8.09 Remove the spade terminal ends of the green, blue, red, and black leads that extend from the soldered terminals of the ringer to the terminal strip assembly.

8.10 Remove the two terminal strip assembly mounting screws from the terminal strip. Lift off the terminal strip assembly from the mounting brackets.

8.11 Remove the ringer from the base by removing the three ringer mounting screws. Lift the ringer out of the base.

Cleaning and Inspection

8.12 The base and base housing should be wiped and brushed free of dust and dirt particules. A mild, non-abrasive soap solution should be used to clean any stains or grime from the plastic base housing. The base housing should be wiped completely dry inside and out and then buffed to a luster. Inspect both the base and the base housing for cracks or other defects. Discard and replace either component that shows any such imperfections.

8.13 All component parts of the base must be wiped clean, being extremely careful during this process not to break or distort any components. All components must be thoroughly checked for obvious defects. It is suggested that a nonmetallic, 1-inch, flat brush be used to clean out any accumulated dust or foreign particles from the components, paying particular attention to all indentations or pockets built into the components. All solder points and terminals must be checked for a proper and tight connection. Check for frayed or poorly insulated leads and replace as required.

9. REASSEMBLING DESK-TYPE 981 and WALL TYPE 982 BASES

9.01 Replace the ringer into the base by locating the ringer, bell downward. Position the three ringer mounting holes directly over the tapped holes in the three posts in the base. Secure with the three screws.

NOTE: The Type 46 replacement ringer is shipped with two sets of screws. The 6-40x5/16 pan-head machine screws are used on the STYLELINE telephone set.

9.02 Replace the terminal strip assembly onto the two mounting brackets that extend above the ringer. Position the terminal strip assembly so that the GTE Automatic Electric trademark is on the right-hand side so that the two mounting holes of the terminal strip assembly, one on each side, line up with the tapped holes in the two brackets. Secure with two screws.

9.03 Connect the ringer capacitor to the terminal strip assembly terminals 15 and 16. Position the ringer capacitor to the right side of terminal 15 just above the bell, and alongside the right side cutout of the terminal strip assembly. Do not allow the capacitor to touch the bell of the ringer.

9.04 Connect the ringer leads to the terminals of the terminal strip assembly as follows:

(a) Connect the black lead to terminal 17.
(b) Connect the red lead to terminal 9.
(c) Connect the blue lead to terminal 12.
(d) Connect the green lead to terminal 16.

9.05 Replace the hookswitch assembly to the base as follows:

(a) Locate the hookswitch assembly in the base in the position indicated in Figure 5.
(b) Position the hookswitch assembly over the two mounting posts on the base so that the holes in the hookswitch mounting plate line up with the tapped holes in the two posts. Secure the mounting plate to the posts with the two mounting screws.

9.06 Connect the hookswitch leads to the terminals of the terminal strip assembly as follows:

(a) Connect the brown lead to terminal 1.
(b) Connect the green lead to terminal 4.
(c) Connect the yellow lead to terminal 10.
(d) Connect the black lead to terminal 11.
(e) Connect the red lead to terminal 20.
(f) Connect the white lead to terminal 8.
(g) Connect the orange lead to terminal 6.

9.07 Replace and wire the line cord connector (D-543625-A) to the base as follows:

(a) Insert the line cord connector into the slot in the upper left-hand corner of the base (Figure 5).
(b) Position the soldered terminals to the left side and push the connector down into the slot until it snaps into position. The contacts must face the opening in the base.
(c) Connect the yellow lead to terminal 9.
(d) Connect the green lead to terminal 8.
(e) Connect the red lead to terminal 10.
(f) Connect the black lead to terminal 1.
(g) Connect the white lead to terminal 3.

9.08 Replace and wire the handset retractile cord connector to the base as follows:

(a) Insert the handset retractile cord connector (D-543625-A) into the slot in the lower portion of the base (Figure 5).
(b) Position the soldered terminals facing upward and push the connector down into the locating tabs above the slot until it snaps into position.
(c) Connect the yellow lead to terminal 21.
(d) Connect the green lead to terminal 20.
(e) Connect the red lead to terminal 11.
(f) Connect the black lead to terminal 4.
(g) Connect the white lead to terminal 3.

NOTE: At This point in the reassembly, make certain that all the terminal screws on the terminal strip assembly are tight and that the spade terminals on the leads do not touch any other terminal.

9.09 Insert the plug end of the retractile cord into the cutout at the lower portion of the base with the contacts of the plug facing upward so that the contacts make properly in the receptacle.

Mechanical Variations

9.10 The desk base and the wall base have variations from each other that affect the reassembly procedure. The variations in the reassembly procedures are indicated in paragraphs 9.11 (desk base) and 9.12 (wall base).

9.11 The specific reassembly procedure for the desk base is as follows:

(a) Insert the brass bearing pin into the holes provided in the base of the plastic hookswitch actuator. Snap the bearing pin and hookswitch actuator assembly into the tabs of the desk housing below the slot in the center of the housing. Position the activating tab on the hookswitch actuator so that the tab fits through the slot in the housing.
(b) Replace the desk housing to the base assembly by holding the base, terminal strip assembly facing upward, in the palm of the left hand. Hold the desk housing in the right hand with the underside facing upward. Turn the base over into the housing and engage the metal tabs at the top of the base under the tabs at the top inner side of the housing. Lower the base into the housing and tighten the captive screw, located on the underside lower left-hand corner of the base.

(c) Insert the plug end of the line cord into the receptacle slot located on the underside of the top portion of the base. Make certain that the exposed contacts on the plug make with the receptacle contacts in the base. Run the line cord in the channel of the base and insert the tip of a fingerplate removal

tool or equivalent into the diagonal slot. Push the line cord retaining clip upward in the slot until the line cord is locked in place.

9.12 The specific reassembly procedure for the wall base is as follows:

(a) Replace the housing retainer spring to the base, by locating the spring on the right hand side of the handset retractile cord connector at the bottom of the base. The curved portion of the spring clip extends above and below the bottom of the base (Figure 6). Secure the housing retainer spring to the post in the base by the mounting screw.
(b) Insert the brass pin into the holes provided in the base of the plastic plunger. Snap the pin and plunger assembly into the tabs of the wall housing above the inverted T slot in the housing and position the plunger so that activating tabs on the plunger fit through T slot.
(c) Attach the wall housing to the base assembly by holding the base with the terminal strip assembly facing upward, in the palm of the left hand. Hold the wall housing in the right hand with the underside facing upward. Turn the base over into the housing and engage the metal tabs at the top of the base under the plastic tab at the top inner side of the housing. Press the base down into the housing until the housing retainer spring snaps through the slot in the housing.

Hookswitch Lever Adjustment

9.13 When the plunger arm is displaced below its dead center position, it must remain in that position due to the force of the coil spring only. It must not restore to the talk position until it is brought past the dead center position by hand.

Hookswitch Springs Adjustment

9.14 Break springs are closed with the hookswitch in the ring position and make springs are closed with the hookswitch in the talk position.

9.15 The backspring must be parallel to the mounting bracket as gauged visually.

9.16 Break springs must follow a minimum of 0.010 inch when the tension of its associated lever spring is removed from it. The back spring need only have perceptible follow.

9.17 The lever spring of the break-make combination must follow only perceptibly when the tension of the first make combination armature spring is removed from the actuating card.

Hookswitch Sequence

9.18 The hookswitch contacts must operate in the following order when the hookswitch is operated from the talk to the ring position:

(a) Second pair of single make combination must open first (next to C combination).
(b) Make spring of break-make combination opens.
(c) Break spring of break-make combination closes.
(d) First pair of single make combination must open at any time.

Restoring Springs

9.19 The restoring spring must cause the pile-up to be actuated fully in the talk position, but not allow the handset to float freely when in the ring position.

9.20 With the base shell properly in place, the restoring spring must cause the hookswitch lever to raise the plastic plunger above the shell 0.240 inch minimum as measured at the outermost edge of the plunger, but must not allow the handset to float freely when in the ring position with either the transmitter or receiver end over the plunger.

Recall Switch Adjustment

9.21 The bottom springs that rest on the recall boss of the housing must follow the top springs a minimum of 0.020 inch as gauged visually when the recall switch is depressed. Springs do not have to break at the same time.

Lubrication

9.22 Distribute one dip of spindle oil (specification 5231 or specification 5920 as an alternate choice) at both ends of the restoring spring hooks.

9.23 Apply one dip of lubricant (specification 5684 or LUBRIPLATE® 107 specification 5906 Grade A as an alternate choice) to the lever bearing surface on each end where it passes through each frame.

10. ROTARY DIAL (TYPE 154A)

10.01 For the shop procedure for the GTE Automatic Electric Type 154A Dial Assembly, refer to Section 997-300-500.

11. CODING HANDSET FOR PACKING

11.01 Coding the Type 980 handset prior to packing requires the formulation of a part number. The coded part number consists of a base number and a variety of suffixes, each having its own particular meaning. The part number is then affixed to the packing carton for identification purposes. A typical part number breakdown, shown under

®Registered trademark of Fiske Brothers Refining Company.

Table 3, represents a Type ND 980 handset, white in color, standard service, ABC non-lighted rotary dial. Use the breakdown shown in Table 3 when formulating the part number of the handset. Refer to Table 4 for optional length handset cord assemblies.

12. CODING BASE FOR PACKING

12.01 Coding the Type 981 (desk base) or Type 982 (wall base) prior to packing requires the formulation of a part number. The coded part number consists of a base number and a variety of suffixes, each having its own particular meaning. The part number is then affixed to the packing carton for identification purposes. A typical part number breakdown shown under Table 5 represents a Type ND 981 desk base, white in color, with a straight line ringer. Use the breakdown shown in Table 5 when formulating the part number of either base.

→ Table 1. Type 980 Handset Parts List.

ITEM NO. FIGS. 1 & 3	ITEM NO. FIGS. 2 & 4	DESCRIPTION	PART NO.	4th & 5th DIGIT COLOR NO.	00	31	32	13		17		19	30	21	22	23	24	25	26	27	28	29	QUANTITY USED ON DIAL	QUANTITY USED ON TC
				COLOR	Basic Black	Beige	Avocado	Classic Ivory		Lemonade		Basic White	Forget-Me-Not Blue	Antique White	Espresso Brown	Tropic Green	Electric Blue	Tangerine	Candy Apple	Porcelain Blue	Sunny Yellow	Autumn Gold		
1	1	Retractile Cord																						
2	2	Number Card Cover	H-880020-5																				1	1
3	3	Designation Strip	D-530386-A																				1	1
4	4	Screws	D-760862-A																				2	2
5	5	Shell Cover	D-52168-		A	AH	T	E		J		M	K	N	Y	AA	AB	AC	AD	AE	AF	AG	1	
			D-52170-		A	AH	T	E		J		M	K	N	Y	AA	AB	AC	AD	AE	AF	AG		1
6	6	Screws	HD-765D-00PB05																				14	12
7		Resistor Capacitor Assembly	D-68875-A																				1	
8	7	Transmission Card	HB-1021-B (TC) HB-1021-A (ROT)																				1	1
9	8	Receiver Mounting Ring	D-58104-A																					1
10	9	Receiver Capsule	D-51030-A																				1	1
11	10	Gasket	HD-670040																				1	1
12		Rotary Dial Assembly	D-84993-A AX*																				1	
	11	Touch Calling Unit	D-840007-A or -C																					1

Table 1. Type 980 Handset Parts List (Continued).

ITEM NO. FIGS. 1 & 3	ITEM NO. FIGS. 2 & 4	DESCRIPTION	PART NO.	4th & 5th DIGIT COLOR NO.	00	31	32	13		17		19	30	21	22	23	24	25	26	27	28	29	QUANTITY USED ON	
				COLOR	Basic Black	Beige	Avocado	Classic Ivory		Lemonade		Basic White	Forget-Me-Not Blue	Antique White	Espresso Brown	Tropic Green	Electric Blue	Tangerine	Candy Apple	Porcelain Blue	Sunny Yellow	Autumn Gold	DIAL	TC
	12	ABC Designation Mat	D-781074-A																					1
	13	Face Plate	D-781075-X																					1
13	14	Recall Pushbutton	D-59376-		A	AH	T	E		J		M	K	N	Y	AA	AB	AC	AD	AE	AF	AG	1	
			D-59380-C																					1
14		Transmitter Cup Bracket (Right)	D-732211-A																				1	
	15	Transmitter Cup Bracket Assembly (Right)	HD-731026-A																					1
15		Transmitter Cup Bracket (Left)	D-732210-A																				1	
	16	Transmitter Cup Bracket Assembly (Left)	HD-731027-A																					1
16		Transmitter Cup & Recall Switch Assembly	D-735574-A																				1	
17																								
	17	Transmitter Cup & Wire Assembly	D-67724-A																					1
	18	Screws	HD-765440-PM05																					2
18	19	Transmitter Capsule	D-38379-A																				1	1
19	20	Transmitter Gasket	D-67718-A																				1	1
20	21	Front Housing	D-52167-		A	AH	T	E		J		M	K	N	Y	AA	AB	AC	AD	AE	AF	AG	1	
			D-52169-		A	AH	T	E		J		M	K	N	Y	AA	AB	AC	AD	AE	AF	AG		1
		Resistor Plug	D-57165-A**																				1	

NOTES: TC – Touch Calling
ROT – Rotary Dial
*AX – Nonlighted
**Used with ABC lighted dial only.

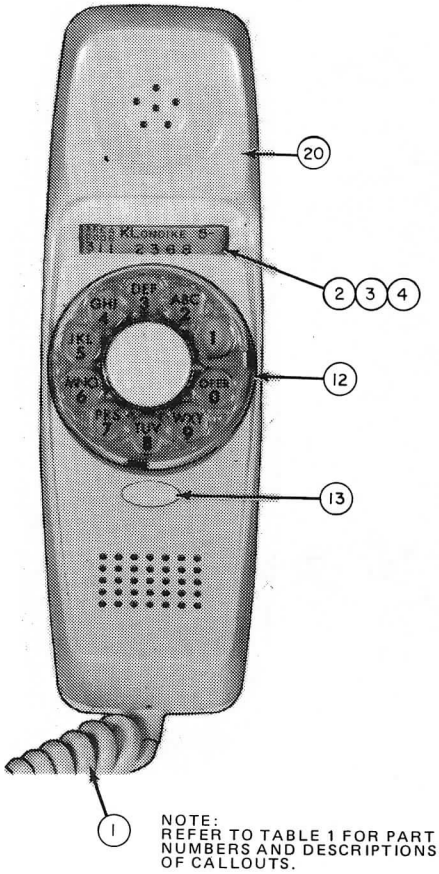


Figure 1. Type 980 Dial-in-Handset.

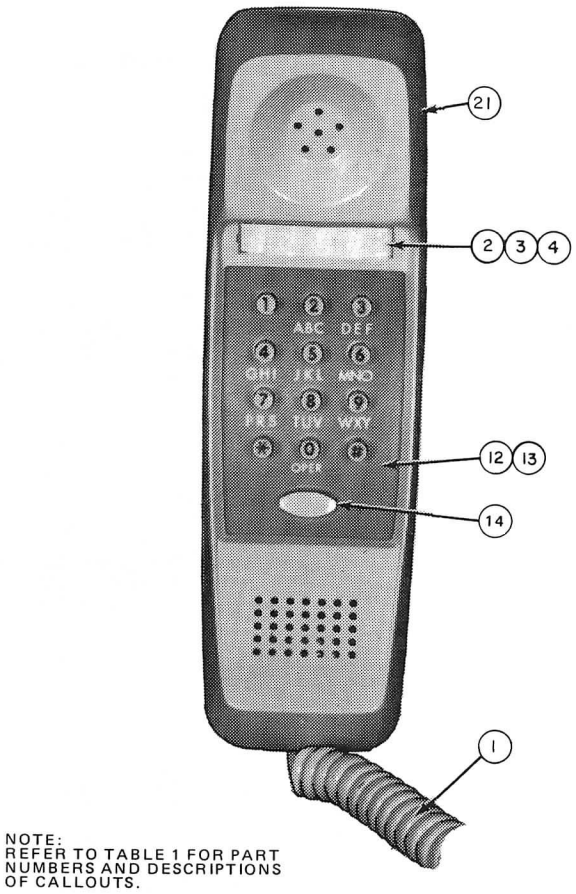
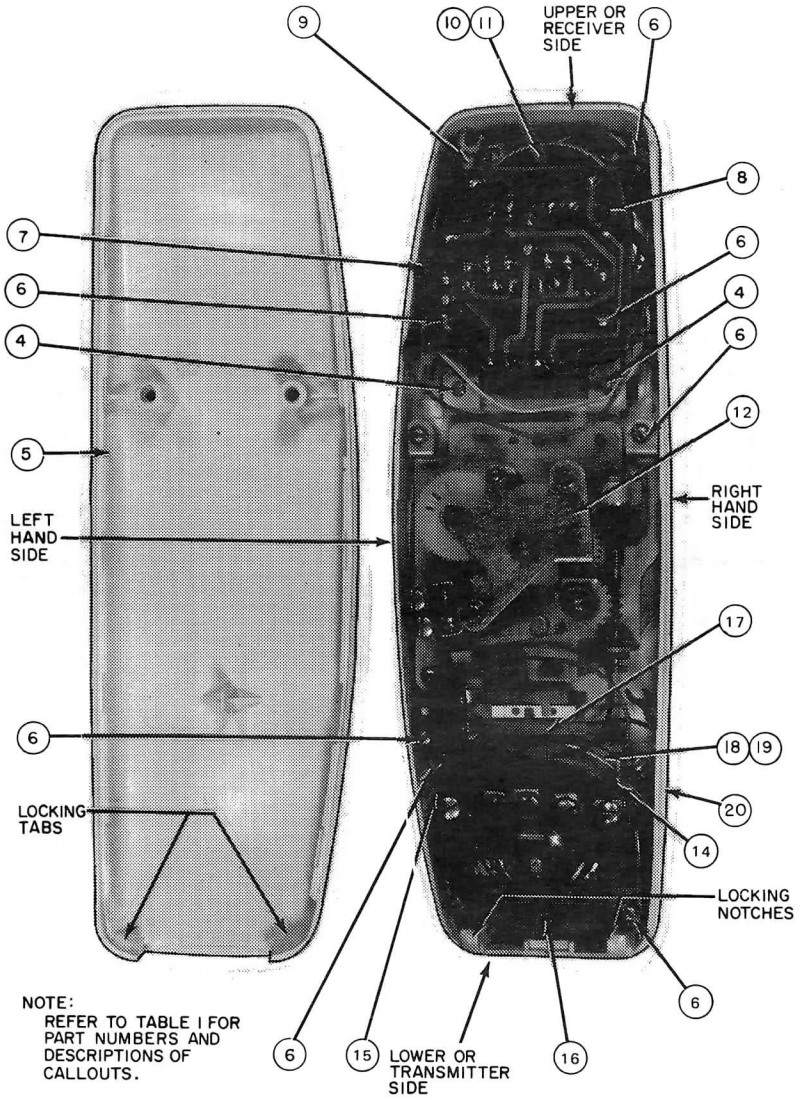
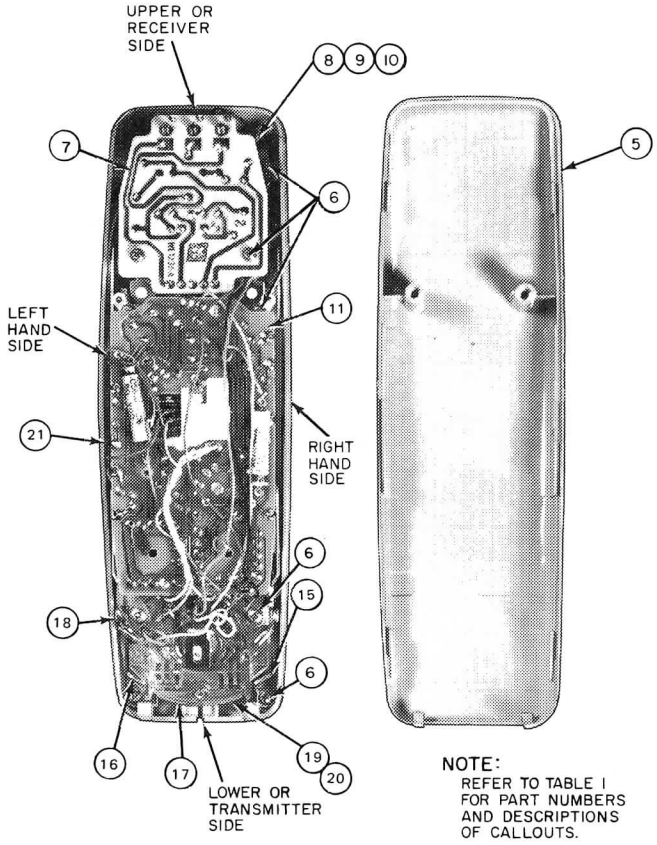


Figure 2. Type 980 Touch Calling Handset.



→ **Figure 3. Type 980 Dial-in-Handset, Shell Cover Removed (Rear View).**



→ **Figure 4. Type 980 Touch Calling Handset, Shell Cover Removed (Rear View).**

→ Table 2. Type 981 and 982 Base Parts List.

FIGS. 5 & 6 ITEM NO.	DESCRIPTION	4th & 5th DIGIT COLOR NO. / PART NO.	00 Basic Black	31 Beige	32 Avocado	13 Ivory		17 Lemonade		19 Basic White	30 Forget-Me-Not Blue	21 Antique White	22 Espresso Brown	23 Tropic Green	24 Electric Blue	25 Tangerine	26 Candy Apple	27 Porcelain Blue	28 Sunny Yellow	29 Autumn Gold	QUANTITY	USED† ON
			COLOR																			
1	Screw	HD-764005-K																		1	D
2	Desk Housing	HD-480035*	A	AH	T	E		J		M	K	N	Y	AA	AB	AC	AD	AE	AF	AG	1	D
3	Wall Housing	HD-480036**	A	AH	T	E		J		M	K	N	Y	AA	AB	AC	AD	AE	AF	AG	1	W
4	Line Cord 3-Conductor Line Cord 5-Conductor	HD-540097-A HD-540099-A																			1	D
5	Screw	HD-765832																			1	W
6	Housing Retainer Spring	D-58103-A																			1	W
7	Screw	HD-765440-PT04																			2	
8	Terminal Strip Assembly	D-150384-A D-150384-AX																			1	
9	Screw	HD-765640-PT05																			4	
10	Ringer	D-56626-ASL																			1	
11	Capacitor, 0.47μF	D-68837-A																			1	
12	Hookswitch Assembly	D-735567-A D-735567-AX																			1	
13	Base Assembly	D-781060-C																			1	
14	Connecting Block	D-150290-A																			1	D

NOTES: †In the "Used On" column above:
D=Desk Base Only.
W=Wall Base Only.
Blank=Used on both desk and wall base.
*HD-480035 consists of the following:
D-49021-XX Housing
D-37783-A Bearing Pin
D-67711-A Actuator (plunger)

**HD-480036 consists of the following:
D-490206-XX Housing
D-37728-A Bearing Pin
D-67715-C Actuator Pin (plunger)

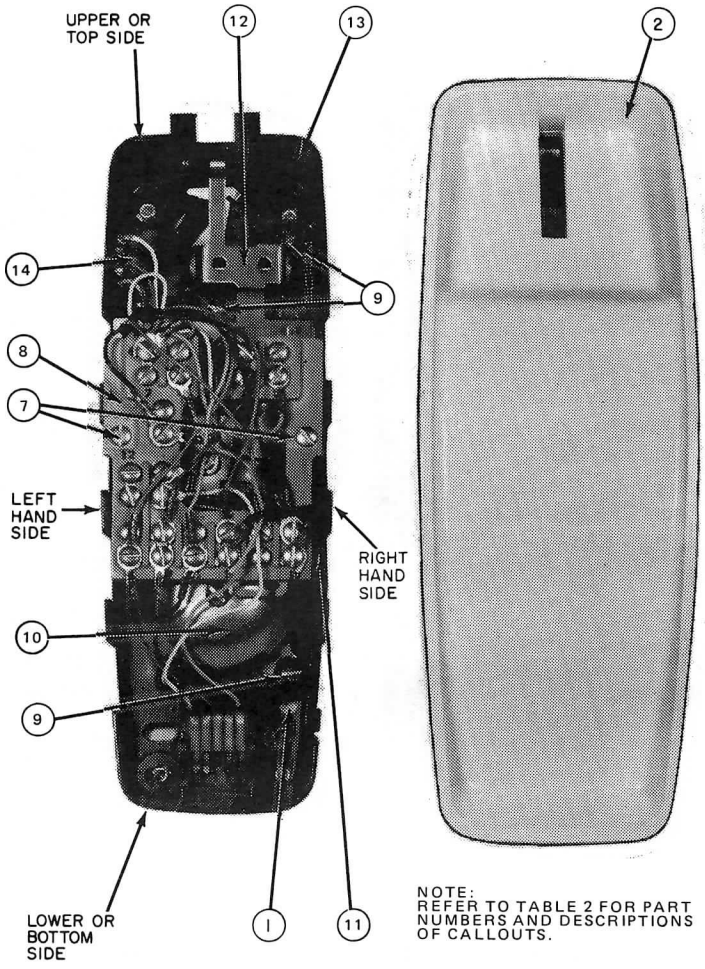


Figure 5. Type 981 Desk Base, Housing Removed.

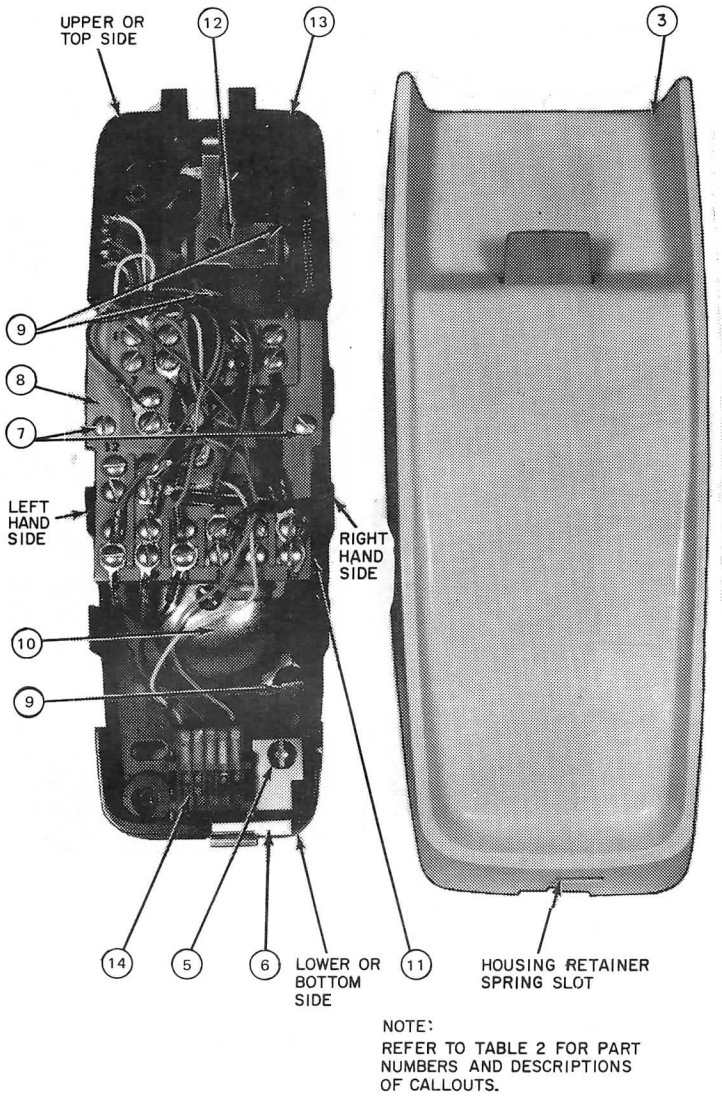


Figure 6. Type 982 Wall Base, Housing Removed.

→ Table 3. Handset Coding Chart.

BASIC NUMBER	4th & 5th DIGITS COLOR CODE		6th DIGIT SPECIAL SERVICE	1st SUFFIX CALLING DEVICE		2nd & 3rd SUFFIX RINGER OPTION*
	COLOR	CODE		TYPE	SUFFIX	
ND-980	Basic black	00	0	ABC dial, nonlighted	C	XX
	Beige	31	0			
	Avocado	32	0			
	Classic Ivory	13	0			
	Lemonade	17	0	ABC 12 pushbutton, Touch Calling	J	XX
	Basic white	19	0			
	Forget-me-not blue	30	0			
	Antique white	21	0			
	Espresso brown	22	0			
	Tropic green	23	0			
	Electric blue	24	0			
	Tangerine	25	0			
	Candy apple	26	0			
	Porcelain blue	27	0			
	Sunny yellow	28	0			
	Autumn gold	29	0			

EXAMPLE NUMBER:
ND-980190-CXX
*The Ringer option is in base code only. Enter XX in the handset code.

→ Table 4. Replacement Handset Cord Coding Chart.

ITEM NO. FIGS. 1 AND 2	DESCRIPTION	PART NO.	1st SUFFIX LENGTH	COLOR	
1	Retractile cord assembly 5-conductor	D-543612	A (5-1/2 ft.)	Basic black	A
			B (9 ft.)	Beige	AH
			C (15 ft.)	Avocado	T
			D (12 ft.)	Classic ivory	E
1	Retractile cord assembly 3-conductor	D-540052	A (5-1/2 ft.)	Lemonade	J
			B (9 ft.)		
			C (15 ft.)	Basic white	M
			D (12 ft.)	Blue	K
				Antique white	N
				Espresso brown	Y
				Tropic green	AA
				Electric blue	AB
				Tangerine	AC
				Candy apple	AD
				Porcelain blue	AE
				Sunny yellow	AF
				Autumn gold	AG

EXAMPLE NUMBER:
D-543612-DAB
5-conductor, 12 foot, electric blue retractile handset cord assembly.

→ Table 5. Base Coding Chart.

BASIC NO.	4th & 5th DIGITS COLOR CODE		6th DIGIT COMPUTER CONTROL CODE	1st SUFFIX	2nd & 3rd SUFFIX RINGER OPTION
	COLOR	CODE			
	Basic black	00	0	X or N*	
ND 981	Beige	31	0	X or N	SL
(Desk Base)	Avocado	32	0	X or N	(Straight line)
	Classic ivory	13	0	X or N	
ND 982					XX
(Wall Base)	Lemonade	17	0	X or N	(Without ringer)
	Basic white	19	0	X or N	
	Forget-me-not blue	30	0	X or N	
	Antique white	21	0	X or N	
	Espresso brown	22	0	X or N	
	Tropic green	23	0	X or N	
	Electric blue	24	0	X or N	
	Tangerine	25	0	X or N	
	Candy apple	26	0	X or N	
	Porcelain blue	27	0	X or N	
	Sunny yellow	28	0	X or N	
	Autumn gold	29	0	X or N	

EXAMPLE NUMBER:
ND-981190-XSL – With any order, the first suffix and the color code also indicate the line cord length, the retractile cord length, the quantity of conductors, and the color-coded desk housing. Refer to Tables 3 and 4 for optional length cord assemblies.

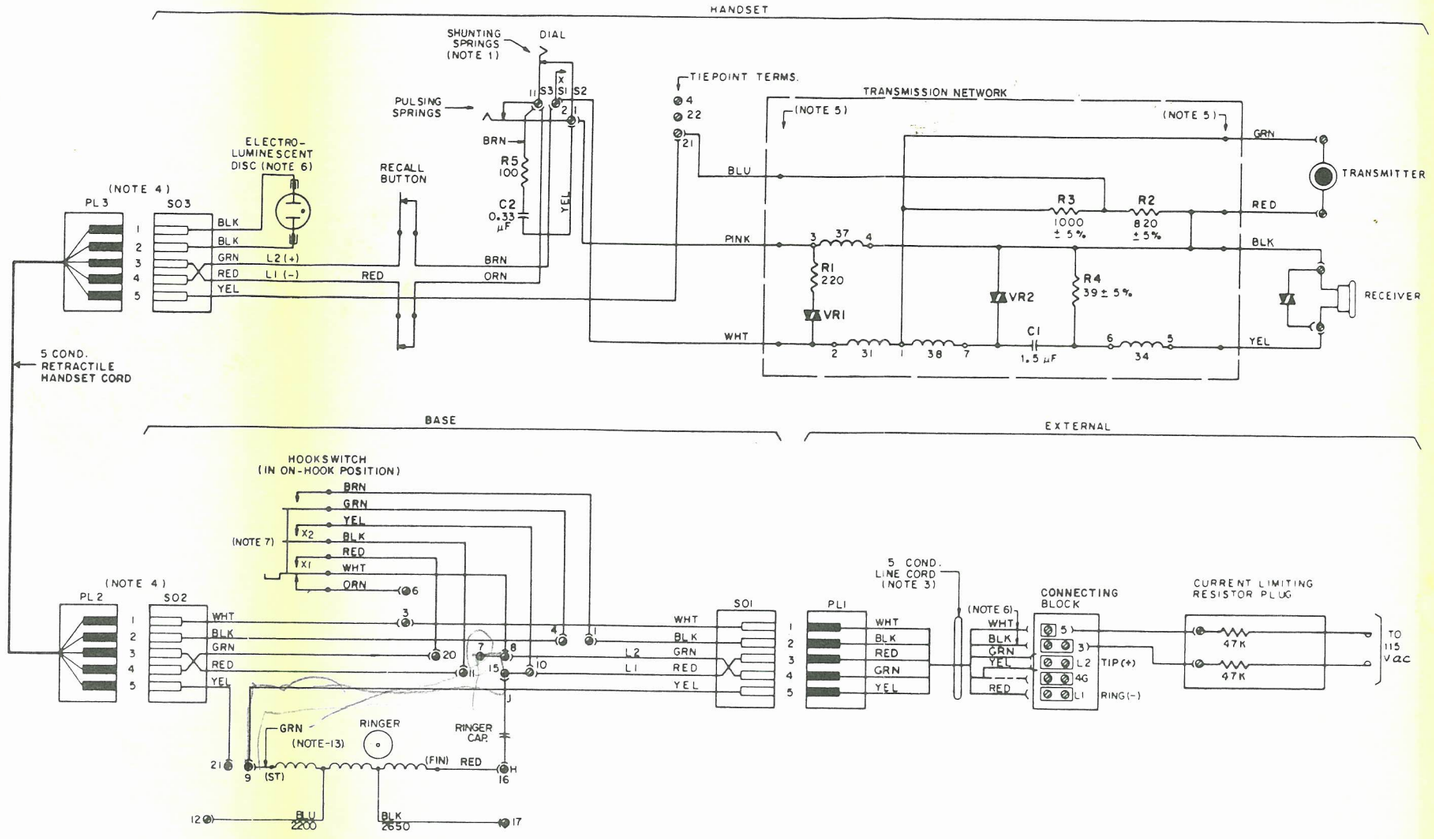
*X indicates lighted version
N indicates nonlighted version

TABLE A
FOR WALL TELEPHONE
METALLIC OR GROUND RINGING, PARTY IDENTIFICATION

TYPE OF RINGING OPTION	TYPE OF DIAL	TELEPHONE BASE (TERMINAL BLOCK & LINE CORDS ARE NOT PROVIDED ON WALL TEL.)											TYPE OF IDENT.
		RINGER LEADS				CAP. LEADS		INTERIOR WIRES			RESISTOR PLUG LEADS		
		BLU	GRN	BLK	RED	H	J	RED	GRN	YEL			
METALLIC (BRIDGED)	STANDARD	12	7	17	16	16	15	(L1) 10	(L2) 8	9	3	1	NONE
GROUND (DIVIDED) RING PTY.	STANDARD	12	9	17	16	16	15	(L1) 10	(L2) 8	9	3	1	NONE
GROUND (DIVIDED) TIP PARTY NOTE 9	STANDARD	12	9	17	16	16	8	(L1) 10	(L2) 8	9	3	1	NONE
METALLIC (BRIDGED) 1ST OR 2ND PARTY	STANDARD	12	7	17	16	16	15	(L1) 10	(L2) 8	9	3	1	NONE
METALLIC (BRIDGED) 2ND PARTY NOTE 10	STANDARD	12	7	17	16	16	15	(L1) 10	(L2) 8	9	3	1	1000 OR 2650 OHMS (INDUCTIVE) (NOTE 17)
METALLIC (BRIDGED) 2ND PARTY NOTE 11	STANDARD	12	7	17	16	16	15	(L1) 10	(L2) 8	9	3	1	3000 OHMS (RESISTIVE)
GROUND (DIVIDED) TIP PARTY NOTE 11	STANDARD	12	9	17	16	16	7	(L1) 10	(L2) 8	9	3	1	3000 OHMS (RESISTIVE)
GROUND (DIVIDED) TIP PARTY NOTE 12	STANDARD	21	9	17	16	16	6	(L1) 10	(L2) 8	9	3	1	2650 OHMS (INDUCTIVE) (NOTE 16)

TABLE B
FOR DESK TELEPHONE
METALLIC OR GROUND RINGING, PARTY IDENTIFICATION

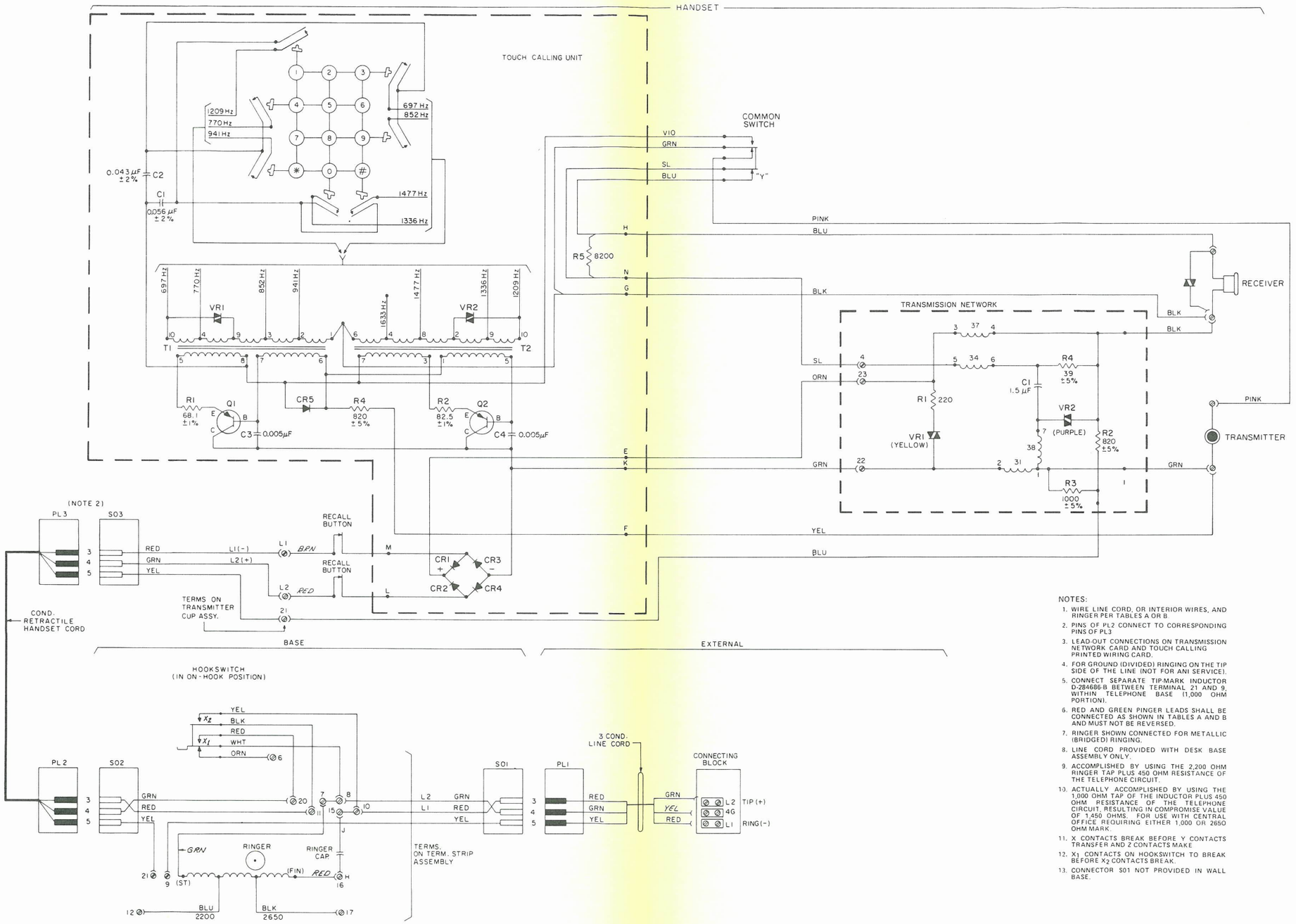
TYPE OF RINGING OPTION	TYPE OF DIAL	TERM. BLOCK NOTE 14			TELEPHONE BASE						TYPE OF IDENT.
		LINE CORD LEADS			RINGER LEADS				CAP. LEADS		
		RED	GRN	YEL	GRN	BLK	RED	BLU	H	J	
METALLIC (BRIDGED)	STANDARD	L1	L2	4G	7	17	16	12	16	15	NONE
GROUND (DIVIDED) RING PTY.	STANDARD	L1	L2	4G	9	17	16	12	16	15	NONE
GROUND (DIVIDED) TIP PTY. NOTE 9	STANDARD	L1	L2	4G	9	17	16	12	16	8	NONE
METALLIC (BRIDGED) 1ST OR 2ND PTY.	STANDARD	L1	L2	4G	7	17	16	12	16	15	NONE
METALLIC (BRIDGED) 2ND PTY. NOTE 10	STANDARD	L1	L2	4G	7	17	16	12	16	15	1000 OR 2650 OHMS (INDUCTIVE) (NOTE 17)
METALLIC (BRIDGED) 2ND PTY. NOTE 11	STANDARD	L1	L2	4G	7	17	16	12	16	15	3000 OHMS (RESISTIVE)
GROUND (DIVIDED) TIP PTY. NOTE 11	STANDARD	L1	L2	4G	9	17	16	12	16	7	3000 OHMS (RESISTIVE)
GROUND (DIVIDED) TIP PARTY NOTE 12	STANDARD	L1	L2	4G	9	17	16	21	16	6	2650 OHMS (INDUCTIVE) (NOTE 16)



NOTES:

1. "X" DIAL CONTACTS TO MAKE FIRST AND BREAK LAST, AND, MUST REMAIN CLOSED WHEN PULSING SPRINGS OPERATE.
3. WIRE LINE CORD, OR INTERIOR WIRES, AND RINGER PER TABLE A OR B.
4. PINS OF PL2 CONNECT TO CORRESPONDING PINS OF PL3.
5. LEAD OUT CONNECTIONS ON TRANSMISSION UNIT CARD.
6. ELECTRO LUMINESCENT DISC OPERATES FROM 115 VAC LINE THROUGH CURRENT LIMITING RESISTOR PLUG.*
7. HOOKSWITCH X_1 CONTACTS **BREAK AFTER** X_2 CONTACTS BREAK.
8. IF RINGER TAPS DURING DIALING, REVERSE-RED AND GREEN RINGER LEADS, EXCEPT WHERE RINGER WINDING IS USED FOR 2650 OHM ANI SERVICE (SEE NOTE 12).
9. FOR GROUND (DIVIDED) RINGING ON THE +TIP SIDE OF THE LINE, WHEN A STANDARD DIAL IS USED, (NOT FOR ANI SERVICE).
10. CONNECT SEPARATE TIP-MARK INDUCTOR D-284686-B BETWEEN TERMINAL NUMBER 21 & 9, WITHIN TELEPHONE BASE (1000 OHM PORTION).
11. DISCONNECT AND TAPE WITHIN HANDSET BLUE LEAD OF TRANSMISSION NETWORK FROM TERMINAL NUMBER 21. TRANSFER BROWN LEAD OF RECALL PUSHBUTTON AND WHITE LEAD OF TRANSMISSION NETWORK FROM DIAL TERMINAL NUMBER 2 TO TIE POINT TERMINAL NUMBER 22. CONNECT 3,000 OHM RESISTOR BETWEEN TERMINAL NUMBER 21 AND DIAL TERMINAL NUMBER 2. IN TELEPHONE BASE, TRANSFER YELLOW LEAD FROM TERMINAL NUMBER 21 TO TERMINAL NUMBER 9.
12. RED AND GREEN RINGER LEADS SHALL BE CONNECTED AS SHOWN IN TABLES A AND B AND MUST NOT BE REVERSED
13. RINGER SHOWN CONNECTED FOR METALLIC (BRIDGED) RINGING.
14. LINE CORD & TERMINAL BLOCK ARE PROVIDED WITH DESK BASE ASSEMBLY ONLY.
15. * LEADS OMITTED FOR NON-LIGHTED VERSION.
16. RETRACTILE HANDSET CORD IS ONLY FURNISHED WITH THE HANDSET ASSEMBLY.
17. ACCOMPLISHED BY USING THE 2200 OHM RINGER TAP PLUS 450 OHM RESISTANCE OF THE TELEPHONE CIRCUIT
18. ACTUALLY ACCOMPLISHED BY USING THE 1000 OHM TAP OF THE INDUCTOR PLUS 450 OHM RESISTANCE OF THE TELEPHONE CIRCUIT, RESULTING IN COMPROMISE VALUE OF 1450 OHMS. FOR USE WITH CENTRAL OFFICE REQUIRING EITHER 1000 OR 2650 OHM MARK
19. WHEN MESSAGE WAITING LAMP IS USED, TRANSFER YELLOW LEAD FROM TERMINAL 21 IN BASE TO TERMINAL 7 IN BASE. TRANSFER RED LEAD FROM TERMINAL 10 IN BASE TO TERMINAL 11 IN BASE IN HANDSET TRANSFER YELLOW LEAD FROM TERMINAL 21 AND CONNECT TO TIE POINT 4. CONNECT ONE LEAD OF LAMP TO TIE POINT 4 AND THE OTHER LEAD TO TERMINAL 11 ON DIAL.
20. CONNECTOR 501 NOT PROVIDED IN WALL BASE. LINE CORD CONDUCTORS TO BE CONNECTED DIRECTLY TO TERMINALS OF TERMINAL BOARD.

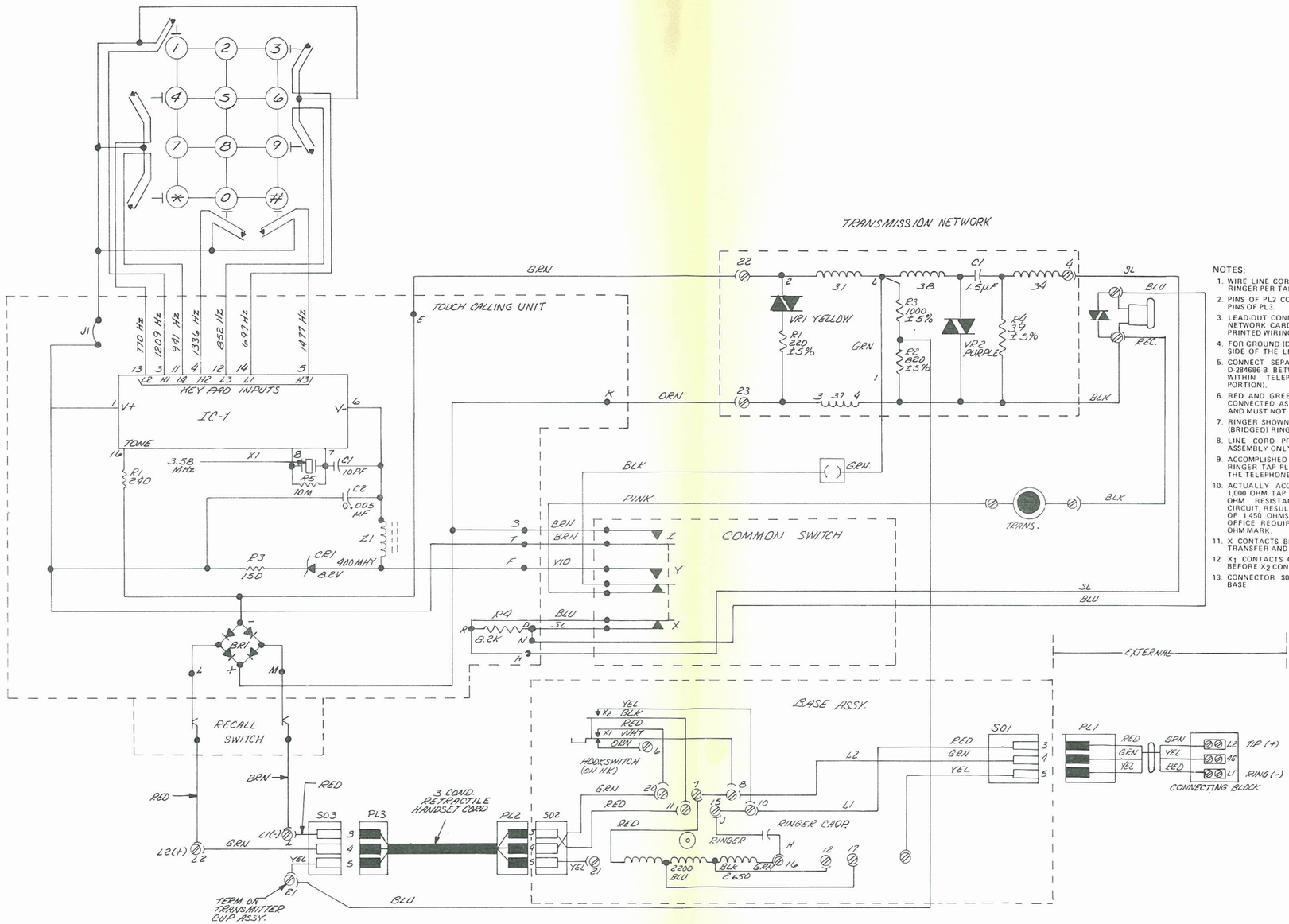
→ **Figure 7. Wiring Diagram for STYLELINE Telephone.**



NOTES:

1. WIRE LINE CORD, OR INTERIOR WIRES, AND RINGER PER TABLES A OR B.
2. PINS OF PL2 CONNECT TO CORRESPONDING PINS OF PL3.
3. LEAD-OUT CONNECTIONS ON TRANSMISSION NETWORK CARD AND TOUCH CALLING PRINTED WIRING CARD.
4. FOR GROUND (DIVIDED) RINGING ON THE TIP SIDE OF THE LINE (NOT FOR ANI SERVICE).
5. CONNECT SEPARATE TIP MARK INDUCTOR D-284686-B BETWEEN TERMINAL 21 AND 9, WITHIN TELEPHONE BASE (1,000 OHM PORTION).
6. RED AND GREEN RINGER LEADS SHALL BE CONNECTED AS SHOWN IN TABLES A AND B AND MUST NOT BE REVERSED.
7. RINGER SHOWN CONNECTED FOR METALLIC (BRIDGED) RINGING.
8. LINE CORD PROVIDED WITH DESK BASE ASSEMBLY ONLY.
9. ACCOMPLISHED BY USING THE 2,200 OHM RINGER TAP PLUS 450 OHM RESISTANCE OF THE TELEPHONE CIRCUIT.
10. ACTUALLY ACCOMPLISHED BY USING THE 1,000 OHM TAP OF THE INDUCTOR PLUS 450 OHM RESISTANCE OF THE TELEPHONE CIRCUIT, RESULTING IN COMPROMISE VALUE OF 1,450 OHMS. FOR USE WITH CENTRAL OFFICE REQUIRING EITHER 1,000 OR 2650 OHM MARK.
11. X CONTACTS BREAK BEFORE Y CONTACTS TRANSFER AND Z CONTACTS MAKE.
12. X_1 CONTACTS ON HOOKSWITCH TO BREAK BEFORE X_2 CONTACTS BREAK.
13. CONNECTOR S01 NOT PROVIDED IN WALL BASE.

→ **Figure 8. Type 980 STYLELINE Telephone D-840007-A.**



NOTES:

1. WIRE LINE CORD, OR INTERIOR WIRES, AND RINGER PER TABLES A OR B.
2. PINS OF PL2 CONNECT TO CORRESPONDING PINS OF PL3.
3. LEAD-OUT CONNECTIONS ON TRANSMISSION NETWORK CARD AND TOUCH CALLING PRINTED WIRING CARD
4. FOR GROUND (DIVIDED) RINGING ON THE TIP SIDE OF THE LINE (NOT FOR ANI SERVICE).
5. CONNECT SEPARATE TIP-MARK INDUCTOR D-284686-B BETWEEN TERMINAL 21 AND 9, WITHIN TELEPHONE BASE (1,000 OHM PORTION).
6. RED AND GREEN RINGER LEADS SHALL BE CONNECTED AS SHOWN IN TABLES A AND B AND MUST NOT BE REVERSED.
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8. LINE CORD PROVIDED WITH DESK BASE ASSEMBLY ONLY.
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10. ACTUALLY ACCOMPLISHED BY USING THE 1,000 OHM TAP OF THE INDUCTOR PLUS 450 OHM RESISTANCE OF THE TELEPHONE CIRCUIT, RESULTING IN COMPROMISE VALUE OF 1,450 OHMS FOR USE WITH CENTRAL OFFICE REQUIRING EITHER 1,000 OR 2650 OHM MARK.
11. X CONTACTS BREAK BEFORE Y CONTACTS TRANSFER AND Z CONTACTS MAKE.
12. X_1 CONTACTS ON HOOKSWITCH TO BREAK BEFORE X_2 CONTACTS BREAK.
13. CONNECTOR S01 NOT PROVIDED IN WALL BASE.

→ **Figure 9. Type 980 STYLELINE Telephone D-840007-C.**

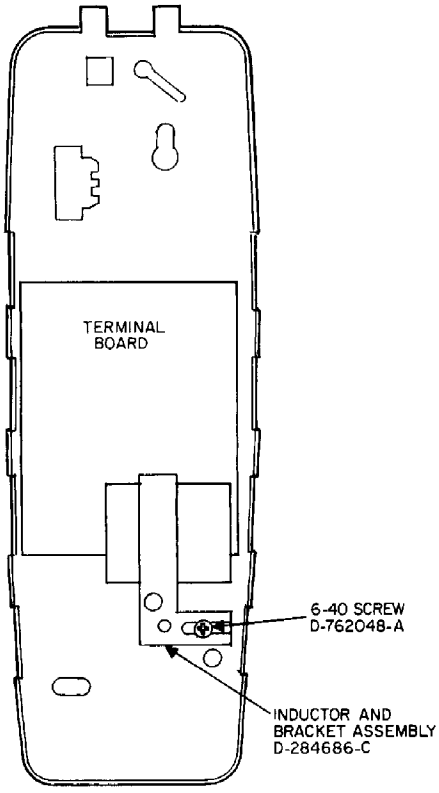

Figure 10. ANI Inductor Installation.

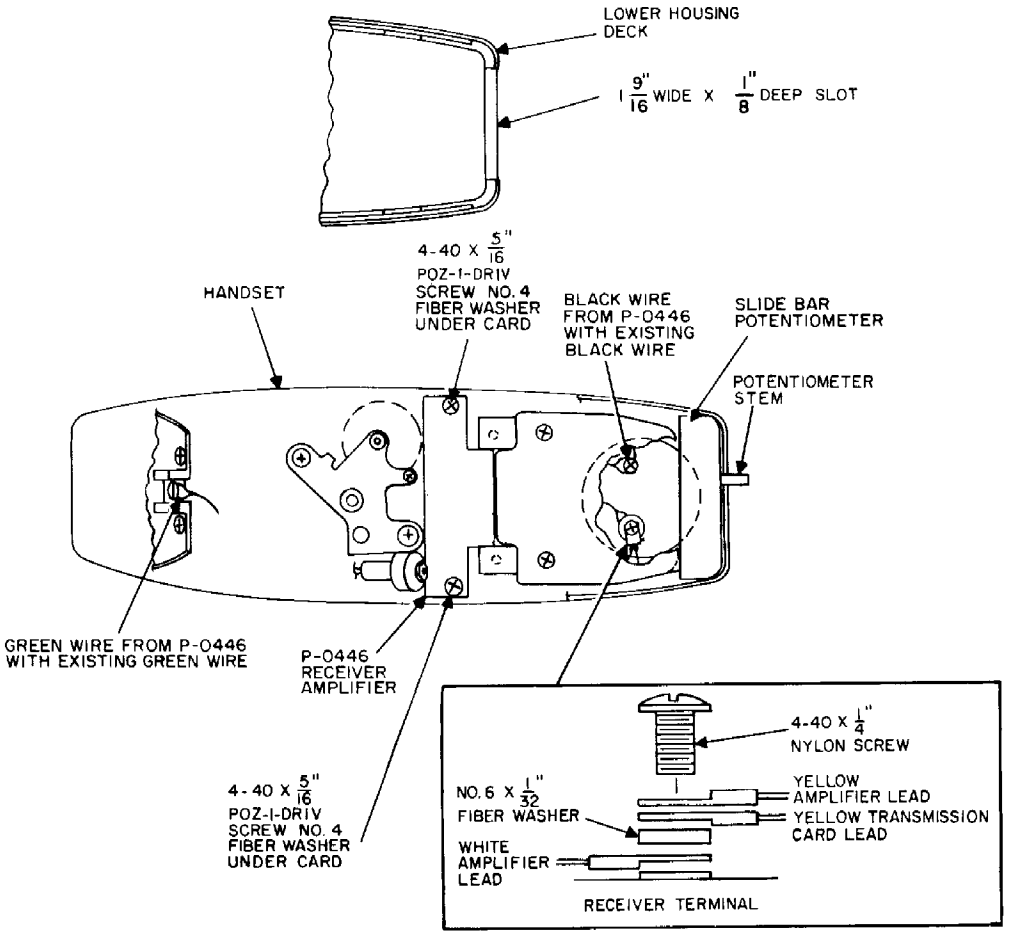

Figure 11. Installation of Receiver Amplifier.