

TYPE 881B AND TYPE 882B SPEAKERPHONES

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1. GENERAL

1.01 This section provides information on the GTE Automatic Electric Type 881B single line and Type 882B multiline desk and wall speakerphones.

1.02 The Type 881B and Type 882B Speakerphones supersede the Type 881A and Type 882A speakerphones. They are available in both rotary dial and Touch Calling signaling for desk or wall mounting in single line or multiline versions with ringer, ringer/buzzers, Signaling and Paging Amplifier (SAPA), or Hands-Free Answerback (HFA) amplifier.

2. FEATURES

2.01 The Type 881B single line and Type 882B multiline desk and wall speakerphones (Figures 1 and 2) operate in the same manner and will accept the same modifications as the Type 881A and Type 882A speakerphones.

2.02 The Type 881B speakerphone can perform on any standard telephone line when the factory-provided power transformer is connected to a 110-Vac power source. The factory will provide one duplex adapter (part No. HD-660999-A), one modular transformer jack (part No. HD-660987-A), and a 10-foot, 2-conductor plug/plug power cord (part No. HD-540202-A) to use with the speakerphone power transformer.

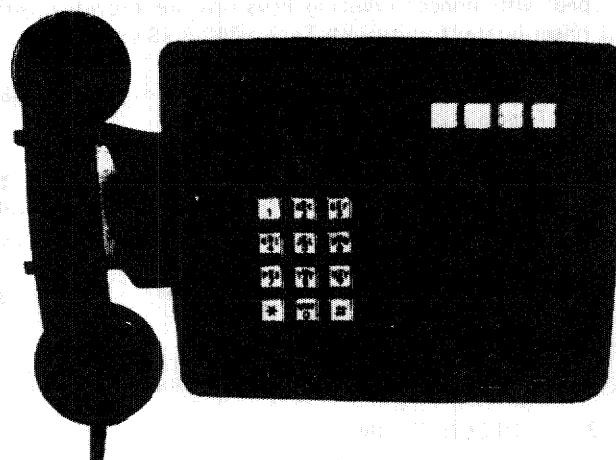


Figure 1. Type 881B Single-Line Speakerphone (Desk Version).

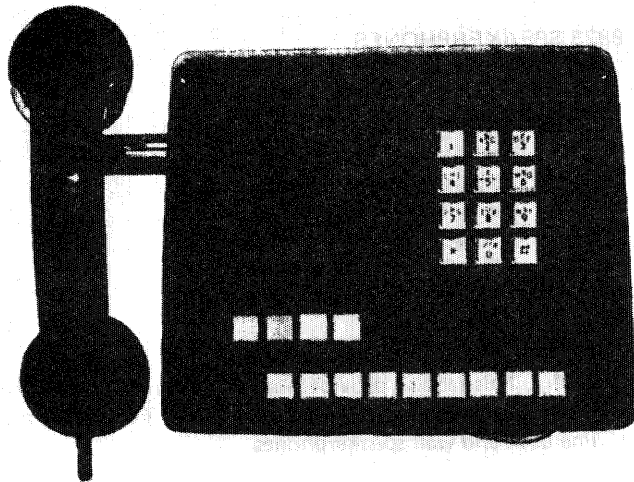


Figure 2. Type 882B Multiline Speakerphone (Wall Version).

2.03 The Type 882B speakerphone operates with the GTE Automatic Electric Type 10A1, 10A2, 17A, and 17A1 Key Telephone Systems (KTS's) and comparable equipment of other manufacturers.

2.04 Both the Type 881B and Type 882B speakerphones may be used as speakerphones or as regular telephones (i.e., handset operation).

2.05 The Type 882B desk-version speakerphones are equipped with either a Type 46A straight line ringer and buzzer, an HFA, or a SAPA. The Type 881B desk- and wall-version speakerphones are equipped with a Type 46A straight line ringer.

2.06 The Type 882B speakerphones are equipped with conferencing keystrips when provided with SAPA or HFA for use with Type 17A/17A1 KTS's. Speakerphones equipped with nonconferencing keystrips are provided with a ringer-buzzer for use with Type 10A2 KTS's.

2.07 The following are special features of the Type 881B and Type 882B speakerphones:

- (a) Large Scale Integrated (LSI) speakerphone circuits.
- (b) Capability to power the Type 882B multiline speakerphone from the -24-Vdc KTS power supply.
- (c) Universal transmission network for both rotary dial and Touch Calling versions.
- (d) Component coupling.
- (e) Additional spare terminals.

3. DESCRIPTION

3.01 The speakerphones (Figures 1 and 2) are 11-1/2 inches long by 8 inches deep by 4-1/2 inches high. The

speakerphones are available in the following colors: basic black, espresso brown, beige, and basic white. Refer to Table 1 for speakerphone part numbers.

Housing

3.02 The housing is of molded plastic and is identical for both the desk- and wall-version speakerphones, except that the wall housing contains an opening for the hookswitch cradle in a different location from that required in the desk housing.

Faceplate and Facemat

3.03 A clear, nonglare faceplate is furnished with each speakerphone. It is inserted over the paper facemat by inserting two tabs into the lower front of the housing and deflecting the housing at the upper edge to engage a third tab into a slot. On the wall-version speakerphones, the two tabs are at the top and a single tab is at the bottom of the telephone. Facemats are available in 13 colors: black, beige, apple green, gold, yellow, blue, white, antique white, tan, brown, avocado, red, and burnt orange. Walnut and teak woodgrain faceplates are also available. Only one color-coordinated facemat is furnished with each speakerphone. The other colors can be ordered separately, if desired. The rotary-dial facemats have the dial numerals and letters printed around the periphery of the dial cutout. The Touch Calling facemats have a position indicated for an adhesive-backed number card.

Top Mounting Plate

3.04 The top mounting plate is hinged to the baseplate. The plate swings away from the speakerphone chassis giving complete access to the internal circuitry and components. Wall-version speakerphones have a plastic top plate latch to hold the top plate in an upward position. A rotary dial or a Touch Calling unit is mounted on the hinged top plate of the speakerphone (Figure 3). The loudspeaker with its baffle plate and protective screen is also mounted to the top plate.

3.05 Non 17A/17A1 KTS speakerphones have a buzzer mounted on the top plate. When HFA is provided, a privacy pushbutton is mounted on the top plate.

Baseplate Components

3.06 The hookswitch assembly mounts to the left side of the baseplate. The ringer SAPA or HFA and the transmission network terminal board and LSI speakerphone circuit card mount directly to the base. Brackets are riveted to the base to provide for keystrip(s) mounting. The speakerphone volume control, HFA volume control, or SAPA volume control are mounted on the perimeter of the baseplate.

Table 1. Speakerphone Ordering Code.
 Table 1a. Single-Line and Multiline Desk-Version Speakerphones.

| BASIC PART NO. | FOURTH AND FIFTH DIGITS | | SIXTH DIGIT | | FIRST SUFFIX | | SECOND AND THIRD SUFFIX | |
|--------------------------------------|-------------------------|------|--|---------|---------------|------|---------------------------------|------|
| | HOUSING COLOR | CODE | TYPE | CODE | TYPE | CODE | TYPE | CODE |
| HE-881 (Single-Line Desk-Version) | Basic Black | 00 | FCC-Approved speakerphone (plug-ended) | 0 | Rotary Dial | C | Ringer | SL |
| | Beige | 10 | International sales (spade-ended) | 1 | Touch Calling | J | | |
| | Basic White | 19 | Standard speakerphone (spade-ended) | 2 | | | | |
| | Espresso Brown | 22 | | | | | | |
| HE-885 (Multiline Desk-Version) | Basic Black | 00 | Nine line with push-button restoral keysets | 1 and 7 | Rotary Dial | C | Ringer and Buzzer | RB |
| | Beige | 10 | Nine line non-conferencing and without pushbutton restoral | 4 and 6 | Touch Calling | J | Signaling and Paging Amplifier | RA |
| | Basic White | 19 | 15 line non-conferencing and without pushbutton restoral | 5 and 8 | | | Hands-Free Answerback Amplifier | AB |
| | Espresso Brown | 22 | | | | | | |

*Numbers 6, 7, and 8 in the sixth digit column denote International Sales.

NOTE: A sample ordering code number is HE-881000-JSL.

Table 1. Speakerphone Ordering Code (Continued).
Table 1b. Single-Line and Multiline Wall-Version Speakerphones.

| BASIC PART NO. | FOURTH AND FIFTH DIGITS | | SIXTH DIGIT | | FIRST SUFFIX | | SECOND AND THIRD SUFFIX | |
|--|-------------------------|------|--|------|---------------|------|---------------------------------|------|
| | HOUSING COLOR | CODE | TYPE | CODE | TYPE | CODE | TYPE | CODE |
| HE-991 (Single-Line, Wall-Version) | Basic Black | 00 | Standard speakerphone (single line) | 0 | Rotary Dial | C | Ringer | SL |
| | Beige | 10 | International sales (single line) | 3 | Touch Calling | J | | |
| | Basic White | 19 | | | | | | |
| | Espresso Brown | 22 | | | | | | |
| HE-995 (Multiline, Wall-Version) | Basic Black | 00 | Nine line with push-button restoral (multiline) | 1 | Rotary Dial | C | Ringer/Buzzer | RB |
| | Beige | 10 | Nine line without push-button restoral (multiline) | 4 | Touch Calling | J | Signaling and Paging Amplifier | RA |
| | Basic White | 19 | International sales (multiline) | 6 | | | Hands-Free Answerback Amplifier | AB |
| | Espresso Brown | 22 | | | | | | |

NOTE: A sample ordering code number is HE-995221-JAB.

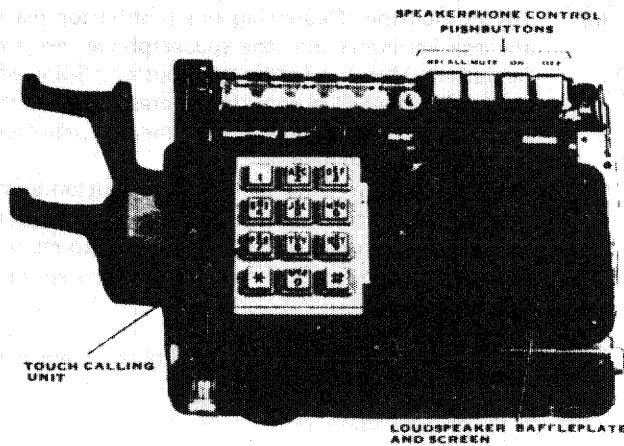


Figure 3. Type 881B Single-Line Speakerphone (Desk Version).

Terminal Strip

3.07 A terminal strip is provided on single-line, wall-version speakerphones for terminating the running cable. On multiline, wall-version speakerphones, an opening is provided in the base. This allows a surface mounted cable to be attached to the internal telephone 25-pair (50-conductor) connector. The baseplate provides four holes near the connector opening for mounting the connector directly to a handy box or plaster ring.

Handset

3.08 The handset is a Type 811 handset equipped with a 6-foot retractile cord that enters at the left side of the housing. On the wall-version speakerphone, the 12-foot retractile handset cord is attached through the base of the housing where a cut-out is provided.

Hookswitch Cradle

3.09 The desk version of the speakerphone has a plastic handset cradle on the left side that operates the internally mounted hookswitch and restores the pushbuttons on multiline telephones. Pushbutton restoral for on-hook and recall operations in initiating new calls or signaling an operator are standard speakerphone features. If pushbutton restoral is not desired, it can be deactivated by moving the plastic pushbutton-restoral actuator to its inner detent position (Figure 4). The plastic actuator is located near the lower rear of the left side bracket. The recall pushbutton is one of the four control pushbuttons for the speakerphone.

3.10 The Type 881B and Type 882B wall-version speakerphones have a movable chrome-plated metal cradle. The hookswitch and wire assembly are mounted inside the telephone set. The pushbutton restoral feature is available in multiline, wall-version speakerphones. If pushbutton restoral is not desired, loosen the two mounting screws on the

cradle arm, slide the actuator away from the baseplate and retighten the two screws.

3.11 On multiline, wall-version speakerphones, the pushbutton restoral bar is connected to the interlock lever with a stainless steel rod. The opposite end of the pushbutton restoral bar rests on the cradle shaft. The bar is engaged when it is actuated by the pushbutton restoral actuator, i.e., when the handset is in the on-hook position (Figure 5).

Ringer

3.12 The Type 46A straight line ringer is used on both speakerphone versions. Its leads are spade ended to plug into the terminal board. A special mounting plate is included for orientation in the wall-version speakerphones.

Signaling and Paging Amplifier

3.13 A Signaling and Paging Amplifier (SAPA) replaces the ringer on multiline Type 882B speakerphones for Type 17A/17A1 KTS use. This unit allows the telephone station to receive signals or messages when in the on-hook position. It is located in the same area as the Type 46A ringer and its leads are spade ended to terminate on the terminal board. The unit works with Type 17A/17A1 Key Telephone Systems (KTS's) only.

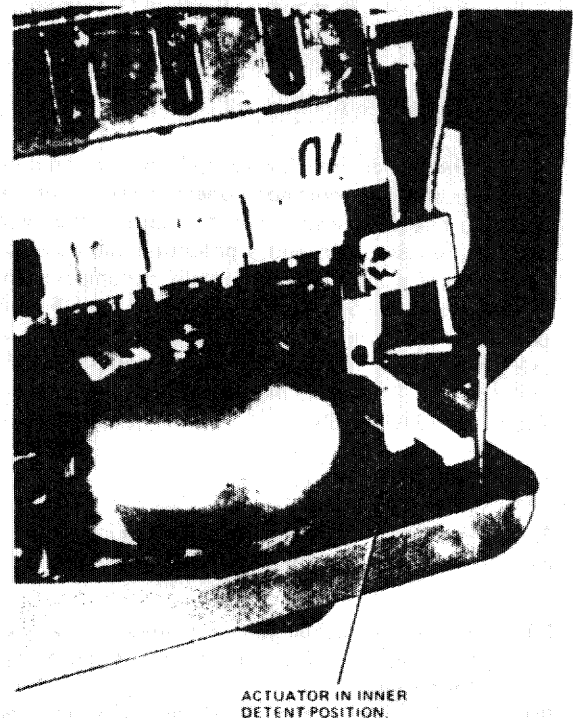


Figure 4a. Pushbutton Restoral Deactivated.

Figure 4. Pushbutton Restoral Mechanism (Desk Version).

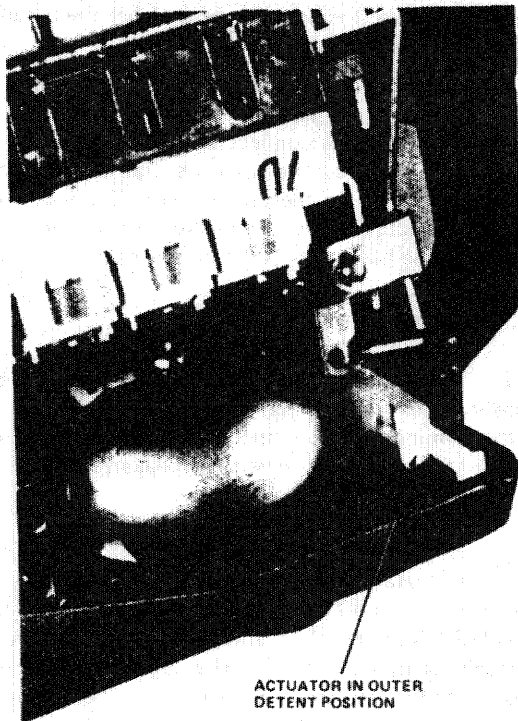


Figure 4b. Pushbutton Restoral Activated.

Figure 4. Pushbutton Restoral Mechanism (Desk Version) (Continued).

Hands-Free Answerback Unit

3.14 The Hands-Free Answerback (HFA) unit consists of a receiver and electronic components mounted on a printed wiring card, a privacy switch that mounts to the top plate, a microphone assembly, and a potentiometer assembly. The card mounts in the position normally occupied by the Type 46A ringer or the SAPA. The purpose of the HFA unit is to permit its user to acknowledge an intercom call without using the handset and to provide an audible signal for incoming calls. This unit, like the SAPA, is used only with Type 17A/17A1 KTS's.

Keystrip

3.15 The Type 881B speakerphone (Figure 1) is equipped with a keystrip containing the following mode-control pushbuttons:

- (a) **RECALL Pushbutton.** Provided to facilitate call termination and subsequent call initiation or operator flashing.
- (b) **MUTE Pushbutton.** When depressed and held, this pushbutton mutes the microphone, thus, preventing the other party from hearing conversation that may be taking place at the speakerphone station. (This does not mute the transmitter when in the transmit mode).

- (c) **ON Pushbutton.** Depressing this pushbutton places the speakerphone into the speakerphone mode of operation. This is a lighted pushbutton. Going off-hook with the ON pushbutton depressed, leaves the pushbutton lighted and transfers the talk path from the speaker to the handset.
- (d) **OFF Pushbutton.** Depressing this pushbutton terminates a call that is in the speakerphone mode of operation. (Depressing this pushbutton also restores an operated line pickup key in multiline speakerphones.)

NOTE: These mode-control pushbuttons are connectorized for easy assembly.

3.16 The nine-line Type 882B speakerphone is equipped with two keystrips. Located near the bottom of the sloping faceplate is a 10-pushbutton keystrip with the hold pushbutton reversed from the normal position on the multiline, wall-version only; and above the 10-pushbutton keystrip is a 4-pushbutton keystrip. The 10-pushbutton keystrip consists of 1 HOLD pushbutton and 9 line-pickup pushbuttons. The four-pushbutton keystrip consists of the four mode-control pushbuttons described in paragraph 3.15.

3.17 The 15-line Type 882B speakerphone is also equipped with two keystrips: one 10-pushbutton keystrip containing 1 HOLD pushbutton, 9 line-pickup pushbuttons; and one 10-pushbutton keystrip containing 6 line-pickup pushbuttons and the 4 mode-control pushbuttons described in paragraph 3.15.

3.18 All of the line-pickup and the ON pushbuttons light when in their operated mode. The wiring to each keystrip pushbutton is by a color-coded, plug-socket arrangement, with the keyset frame serving as the socket. Service arrangements can be easily altered by rearrangement of the plug connections in the speakerphone.

3.19 For Type 10A2 KTS use, the speakerphones are equipped with non-conferencing-type keysets and ringer buzzers. The units used in Type 17A/17A1 KTS service are equipped with conferencing-type keysets and SAPA or HFA. On a conferencing-type keyset, two or more line-pickup pushbuttons may be operated simultaneously. This simultaneous operation of several keys is used in conferences on a Type 17A/17A1 KTS. The speakerphone used with the Type 17A/17A1 KTS is equipped with a 10-pushbutton keystrip containing 1 hold pushbutton, 7 line pushbuttons, 2 intercom pushbuttons, and the 4 mode-control pushbuttons described in paragraph 3.15.

Cables

3.20 Single-line, desk-version speakerphones are supplied with a 6-foot line cord that is plug ended, and a 10-foot plug/plug 2-conductor cord. Both cords are neutral silver-satin in color. Single-line, wall-version speakerphones are



Figure 5. Pushbutton Restoral Mechanism (Wall Version).

equipped with a terminal strip mounted to the base of the baseplate from which many of the electrical connections are made (transformer plug is provided). The nine-line, desk versions are provided with a 25-pair (50 conductor), connector-ended cable. The 15-line versions equipped with ringer-buzzer for use in 10A2-type KTS's are provided with a 100-conductor, dual connector-ended cable. The multi-line wall-version speakerphone uses a 25-pair (50-conductor) connector and a 2-conductor, 7-foot power cord.

Transmission Network

3.21 The transmission network printed wiring card assembly is located on the baseplate. The network is universal to rotary dial and Touch Calling speakerphones. Its leads are connector ended and plug onto the terminal board.

Terminal Board

3.22 The terminal board assembly is located in the center of the baseplate. The component subassemblies that plug onto this card use push-on type terminals.

Large Scale Integrated (LSI) Speakerphone Circuit Card

3.23 The LSI circuit card is a printed wiring card using bipolar devices. It is located on the baseplate at the opposite end from the transmission card. The LSI circuit card

selects the transmit, standby, or receive mode based on the relative amplitude of signals received from the line and of voice and background noise signals received from the microphone.

Rotary Dial

3.24 The Type 52 dial has connector-ended leads for easy installation and removal from the terminal board.

Touch Calling Unit

3.25 The Touch Calling Unit (TCU), Type 18D, that is used is similar to the Type 12D TCU. It utilizes the Type 12D TCU pushbutton assembly and has an integrated circuit tone generator. It is not electrically compatible with the non-modular Integrated Circuit Touch Calling Unit (ICTCU). It differs from the Type 12D TCU in that the common switch has additional contacts and the leads are connector-ended for easy installation and removal from the terminal board and the printed wiring card assembly.

Speaker

3.26 The speaker assembly is a 3-1/2-inch round, 45-ohm speaker. It has receptacles for square post terminals and plugs into the speakerphone circuit card. It is mounted to the top plate on the speakerphone.

Microphone

3.27 The microphone for both the speakerphone and HFA pickup is an electret condenser microphone. It is mounted on the perimeter of the base under the lip of the housing near the dial or TCU. The speakerphone microphone wires are connector ended and plug into the speakerphone circuit card. The HFA microphone wires are spade ended and plug into the HFA unit.

Volume Controls

3.28 The volume control potentiometers for the speakerphone and HFA units are identical except for their leads. They are both 50K potentiometers. The unit for the speakerphone has three leads which are connector ended and plug into the speakerphone card. The unit for the HFA feature has two leads which are spade ended and plug into the HFA unit. The volume control for the SAPA unit has a 10K potentiometer.

4. INSTALLATION

Type 881B Single-Line, Desk-Version Speakerphone

4.01 The Type 881B single-line, desk-version speakerphone is equipped with a 6-conductor line cord terminated in a modular plug. The telephone is provided with the required transformer. This speakerphone can be ordered by using the prefix HE (refer to Table 1). Refer to Figures 6 and 7 for the wiring diagram.

4.02 Power to the telephone may be provided in two basic ways (Figure 8): method 1 uses a cord with a plug on one end and spade leads on the other end and method 2 uses a double plug-ended cord for power from the transformer. The following hardware is required:

- (a) Duplex adapter, part No. HD-660999-A.
- (b) Power cords as follows:
 - (1) For the seven foot line cord used in method 1, it is necessary to clip the center four conductors with the jacket and coat the exposed ends with a suitable insulating material.
 - (2) Method 2, uses a 10 foot cord, part No. HD-540202-A.
- (c) Transformer, part No. HD-570065-A.
- (d) Jack assembly (used only in method 2), part No. HD-660987-A, is to be attached by two screws provided with the transformer for two spade leads.

With these two arrangements (Figure 8), ac power is supplied from the transformer through conductors No. 1 and No. 6 of the power cord to terminals No. 1 and No. 6 of the duplex adapter, then to conductors No. 1 and No. 6 of the line cord to the telephone. The duplex adapter does not

connect the power into the wall jack since there are no terminals at positions No. 1 and No. 6 of the duplex adapter plug.

Type 881B Single-Line, Wall-Version Speakerphone

4.03 To install a Type 881B single-line, wall-version speakerphone, proceed as follows:

- (a) Spread the housing to free the tab at the bottom of the baseplate from the housing. Carefully insert a screwdriver or other flat-edged tool (so as not to scratch the plastic) under the faceplate and lift it out. Be careful not to damage the facemat.
- (b) Lift out the facemat.
- (c) Under the facemat are two housing screws. Loosen these screws and lift the housing off.
- (d) A hinged top plate is located under the housing. Swing this top plate toward the front of the speakerphone and lock the top plate latch into position. This exposes the terminal board onto which many of the electrical connections are made.
- (e) Hold the speakerphone in its mounting position against the wall and mark the upper and lower mounting locations in the keyhole slots and the lower mounting holes in the baseplates.
- (f) As dictated by the type of wall material, use No. 8 wood screws directly into the wall or into anchors for No. 8 wood screws.
- (g) Install a 7/8-inch long, No. 8 wood screw into each of the upper mounting locations (keyhole slots) to within approximately 7/16-inch from the surface of the wall. Hang the speakerphone on these screws and install 7/8-inch long, No. 8 wood screws in the lower mounting holes and tighten all four screws.

4.04 When mounting a wall-version speakerphone over an electrical conduit box, use an adapter plate kit (part No. HH-880050-1). This permits mounting to most existing conduit boxes. Mounting instructions and screws are provided with the kit.

4.05 If so desired, the speakerphone can be mounted directly to a handy box or plaster ring. Four holes are provided near the connector opening for this purpose. No. 6 by 5/8-inch-long (minimum) screws are used for direct mounting. The top screws are run down to approximately 3/8 inch and the speakerphone is hung on the screws with the keyhole slots. The top screws should be run down as far as possible and still allow a forced mounting. Keyhole slots should be either insulated or run down sufficiently to prevent shorting with the bottom of the cards or terminal boards. After this adjustment is made, the speakerphone should be mounted and the additional screws assembled in the bottom holes.

NOTE: It may be more convenient to insert the lower screws into the baseplate prior to mounting the speakerphone on the keyhole slots.

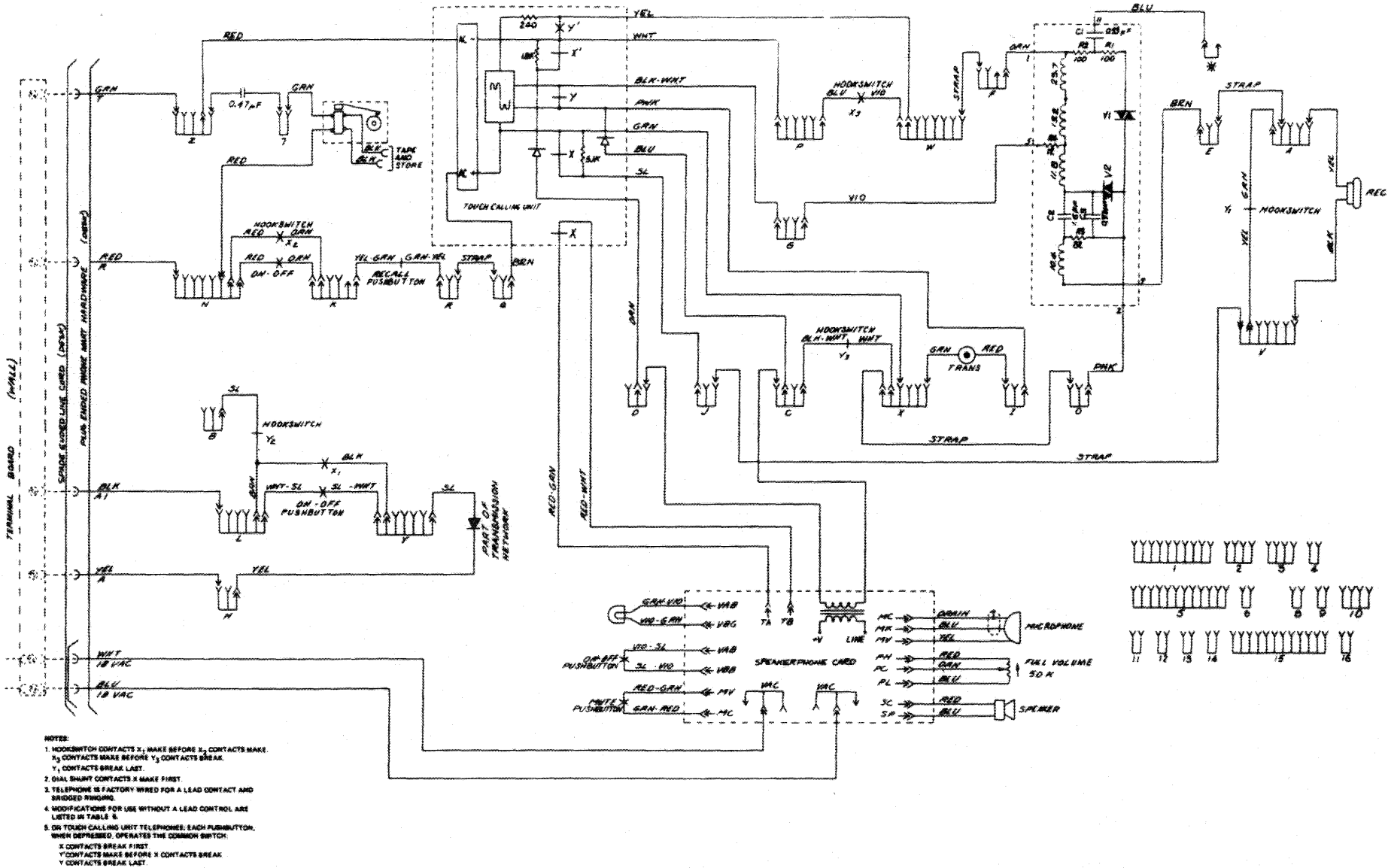


Figure 6. Type 881B Speakerphone Wiring Diagram (Touch Calling).

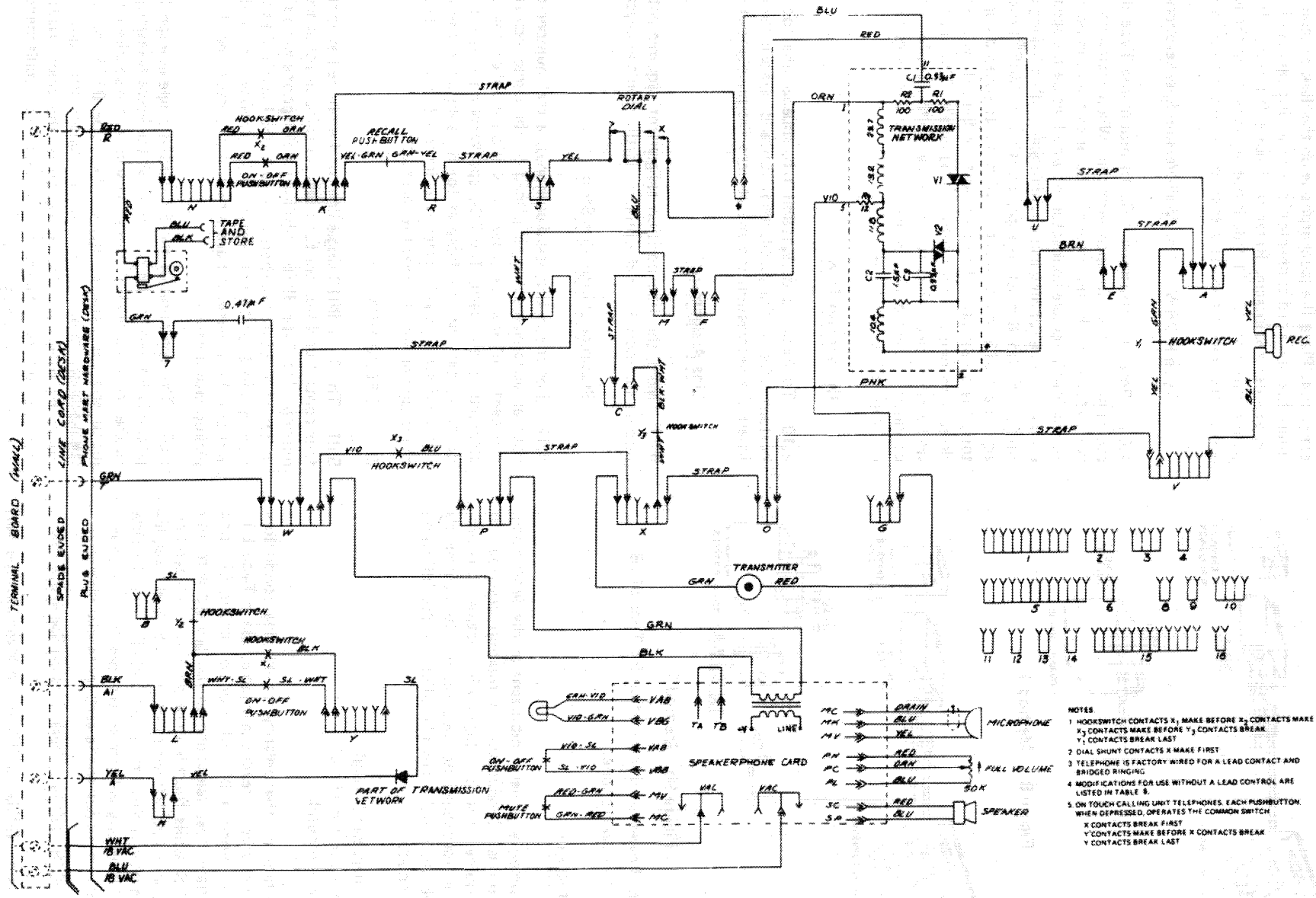


Figure 7. Type 881B Speakerphone Wiring Diagram (Rotary).

- NOTES
- 1 HOOKSWITCH CONTACTS X₁ MAKE BEFORE X₂; CONTACTS MAKE
 - 2 CONTACTS MAKE BEFORE Y₃; CONTACTS BREAK
 - 3 CONTACTS BREAK LAST
 - 4 DIAL SHUNT CONTACTS X MAKE FIRST
 - 5 TELEPHONE IS FACTORY WIRED FOR A LEAD CONTROL AND BRIDGED RINGING
 - 6 MODIFICATIONS FOR USE WITHOUT A LEAD CONTROL ARE LISTED IN TABLE B
 - 7 ON TOUCH CALLING UNIT TELEPHONES, EACH PUSHBUTTON WHEN DEPRESSED, OPERATES THE COMMON SWITCH
 - X CONTACTS BREAK FIRST
 - Y CONTACTS MAKE BEFORE X CONTACTS BREAK
 - Z CONTACTS BREAK LAST

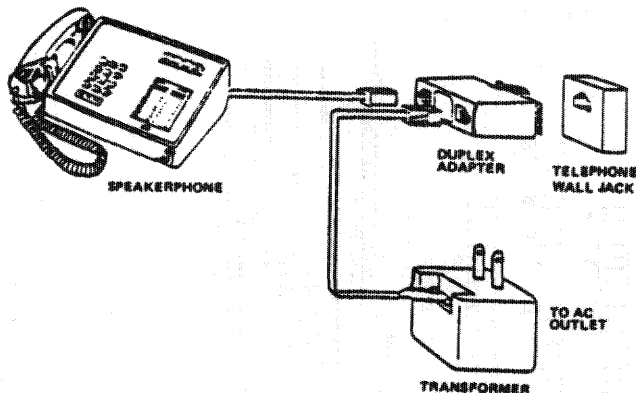


Figure 8a. Method 1.

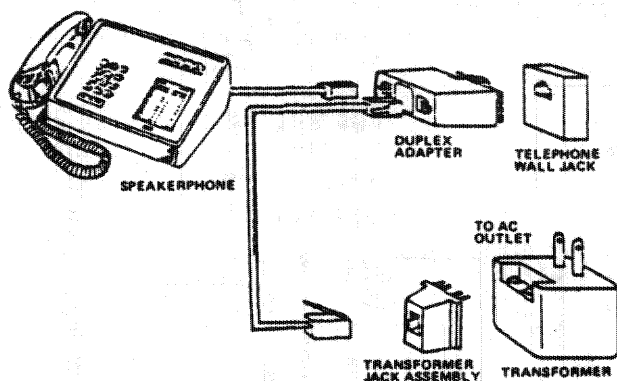


Figure 8b. Method 2.

Figure 8. Power Cord Installation for Type 881B Speakerphone.

Line Polarity

4.06 Line polarity is very important at divided-ringing, party-line stations. Connection information described in this section assumes that the interior wires between the protector and the speakerphone location on the customer's premises have their polarities identified by the following standard color code:

- (a) Red — negative (—ring).
- (b) Green — positive (+ tip).
- (c) Yellow — ground.

4.07 To determine the polarity of the line conductors when a ground wire is readily available, use a Type 801 Hand Test Telephone (L-9078-A1) or equivalent. Clip one lead of the hand test telephone to the ground wire and listen for a click while touching the other clip to each line wire. The louder click, followed sometimes by dial tone, indicates the negative side of the line (ring). The positive side of the line (tip) usually will not sound completely dead but will give a weaker click due to the earth potential difference.

Type 882B Multiline, Desk-Version Speakerphone

4.08 The Type 882B multiline, desk-version speakerphone is provided with a line cord that is terminated with a

connector. Place the speakerphone on the desk or table and insert the line cord connector into a running cable or bridging adapter receptacle. Refer to Figures 9 through 15 for wiring diagrams. If -24 Vdc is not available from the KTS, a separate power cord and transformer must be provided.

Type 882B Multiline, Wall-Version Speakerphone

4.09 Refer to paragraph 4.03 to mount the Type 882B multiline wall-version speakerphone. When installing to a wall, attach the 50-pin male connector of the running cable to the 50-pin female connector mounted inside the speakerphone. When a running cable is equipped with a Viking connector, the hood must be replaced with an AMP® type (or equivalent). On running cables with metal encased connectors, the strain relief bracket must be bent downward 90 degrees to permit entry into the baseplate. The multiline, wall-version speakerphone is equipped with a six-foot, two-conductor, spade-ended power cord and a transformer for hookup to 110 Vac power.

Designation Tabs

4.10 To install a designation tab, squeeze the top and bottom sides of the pushbutton cap and remove the cap. Insert the designation tab and replace the pushbutton cap.

Line Assignment

4.11 Meet the line position assignment requirement by placing the modules in the proper locations on the keystrip.

Stamping Designation Strip

4.12 For rotary-dial speakerphones, a dial number card with an adhesive backing is placed on the circle located in the center of the dial after the station number has been stamped on the card. The TCU speakerphones have a rectangular space on the facemat for an adhesive-backed designation strip, which, after it is installed, is protected by the faceplate that fits over the facemat.

5. OPERATION

5.01 The Type 881B single-line speakerphone has a set of four control pushbuttons for selection and control of transmission. The Type 882B multiline speakerphone has a similar set of 4 control pushbuttons, but also has a hold pushbutton and 9 or 15 line-pickup pushbuttons for the desk versions. Wall versions have a hold pushbutton and 9 line-pickup pushbuttons.

5.02 The operation of the Type 881B single-line speakerphone is limited to the switching of the voice transmission to the various modes of operation such as the speakerphone mode and the handset mode. The Type 882B multiline speakerphone consists of voice transmission and also switching functions. The operation of the voice transmission and switching functions are described simultaneously in the following paragraphs.

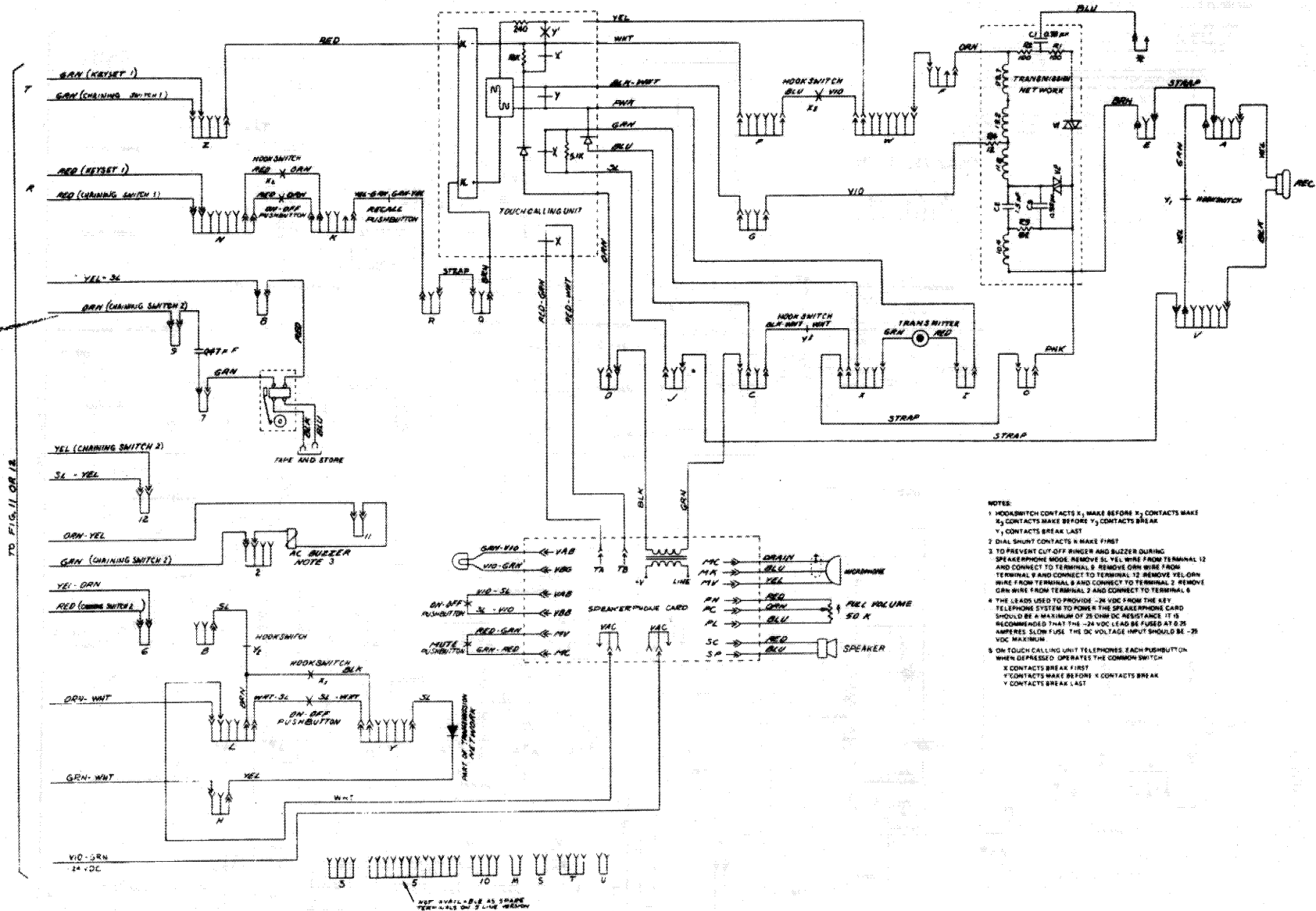
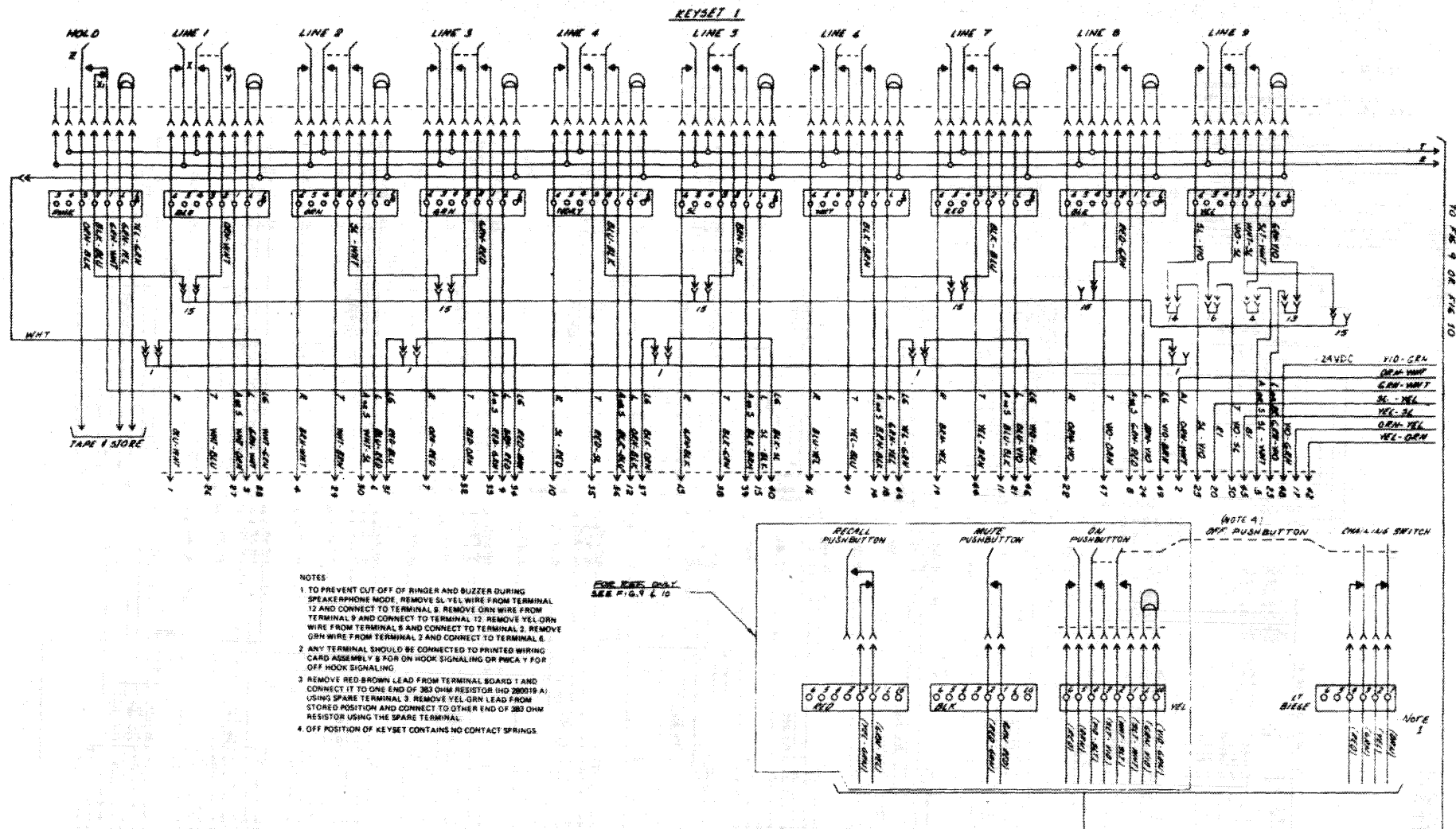


Figure 9. Type 882B Speakerphone Wiring Diagram (Touch Calling) with Ringer and Buzzer.



- NOTES
1. TO PREVENT CUT OFF OF RINGER AND BUZZER DURING SPEAKERPHONE MODE, REMOVE SL YEL WIRE FROM TERMINAL 12 AND CONNECT TO TERMINAL 9. REMOVE GRN WIRE FROM TERMINAL 9 AND CONNECT TO TERMINAL 12. REMOVE YEL GRN WIRE FROM TERMINAL 8 AND CONNECT TO TERMINAL 2. REMOVE GRN WIRE FROM TERMINAL 2 AND CONNECT TO TERMINAL 6.
 2. ANY TERMINAL SHOULD BE CONNECTED TO PRINTED WIRING CARD ASSEMBLY B FOR ON HOOK SIGNALING OR PWCA Y FOR OFF HOOK SIGNALING.
 3. REMOVE RED BROWN LEAD FROM TERMINAL BOARD 1 AND CONNECT IT TO ONE END OF 363 OHM RESISTOR (HD 280019 A). USING SPARE TERMINAL 3. REMOVE YEL GRN LEAD FROM STORED POSITION AND CONNECT TO OTHER END OF 363 OHM RESISTOR USING THE SPARE TERMINAL.
 4. OFF POSITION OF KEYSSET CONTAINS NO CONTACT SPRINGS.

FOR P.W.C. ONLY
SEE FIG. 9 & 10

CONTROL KEYS

Figure 11. Type 882B Speakerphone Wiring Diagram for Nine-Line Keyset with Ringer and Buzzer.

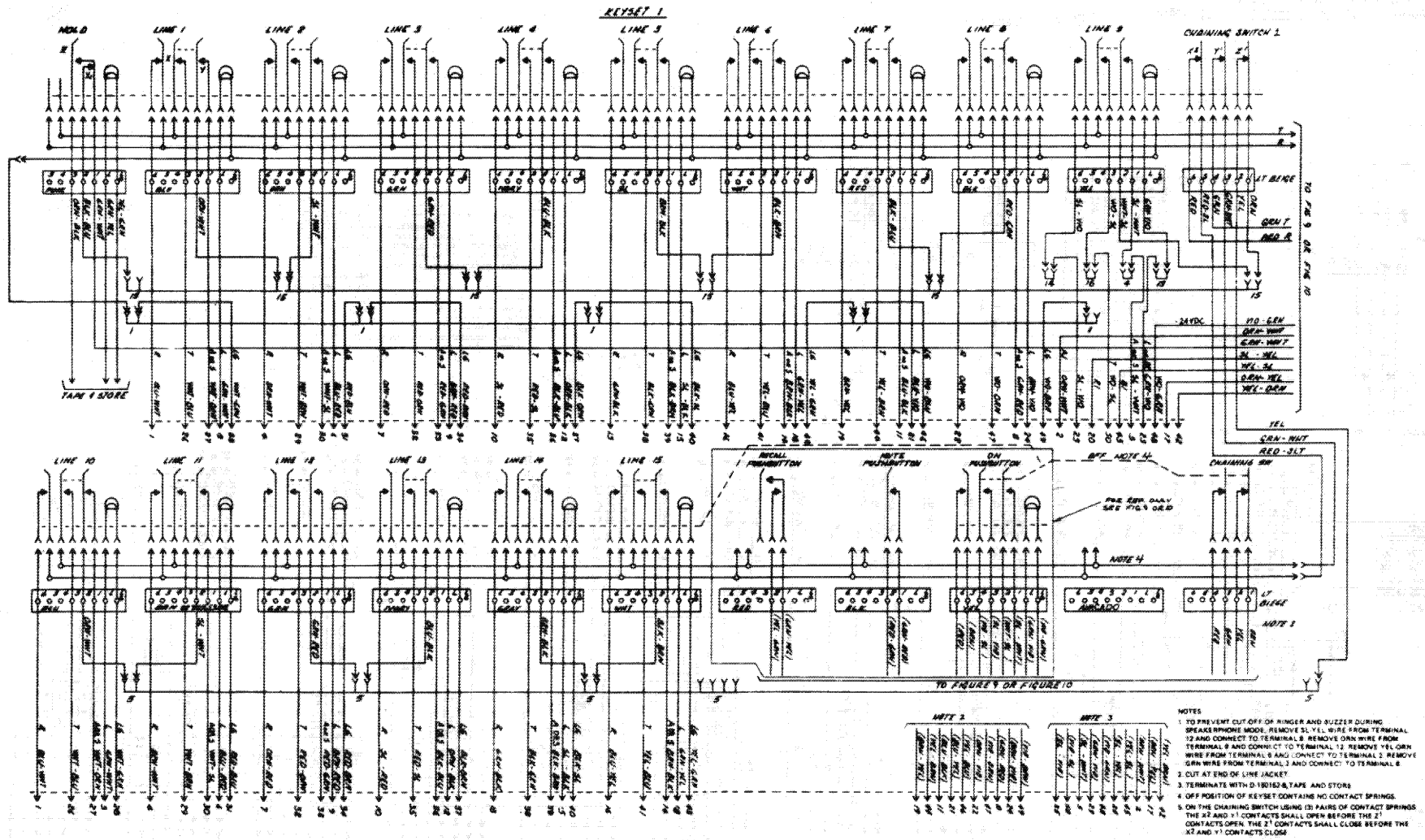


Figure 12. Type 882B Speakerphone Wiring Diagram for 15-line Keypad with Ringer and Buzzer.

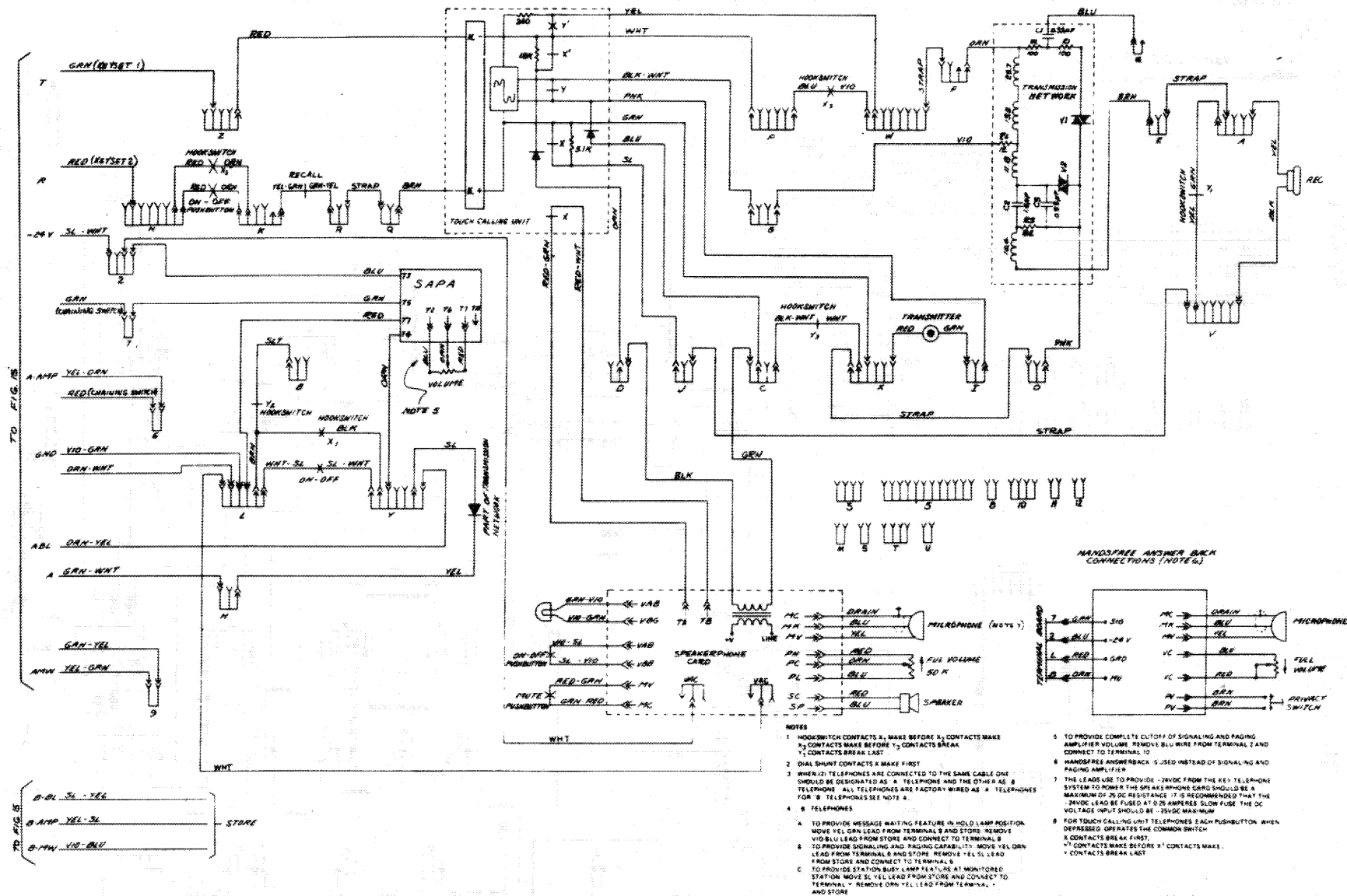


Figure 13. Type 882B Speakerphone Wiring Diagram (Touch Calling) with SAPA or HFA.

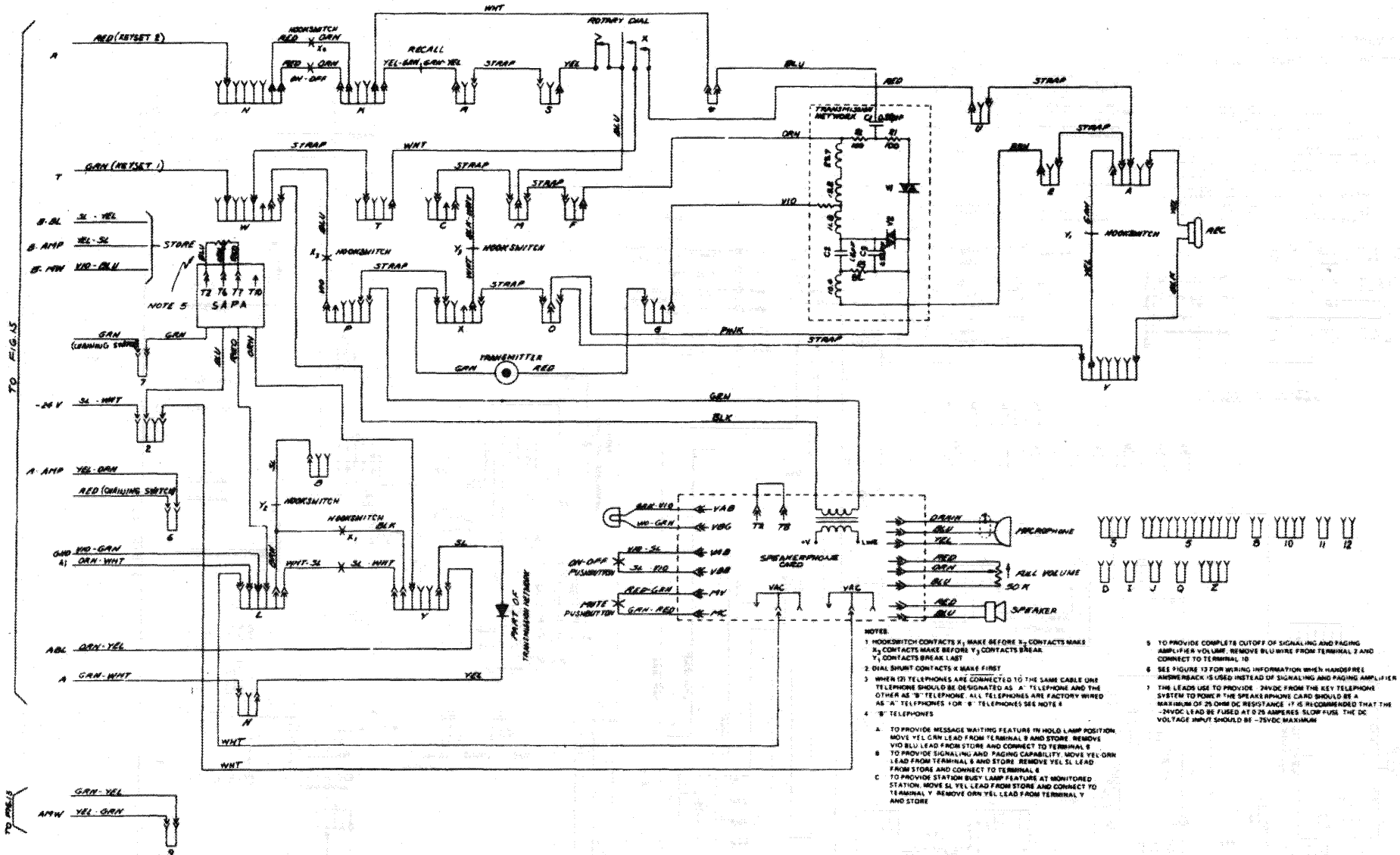


Figure 14. Type 882B Speakerphone Wiring Diagram (Rotary) with SAPA or HFA.

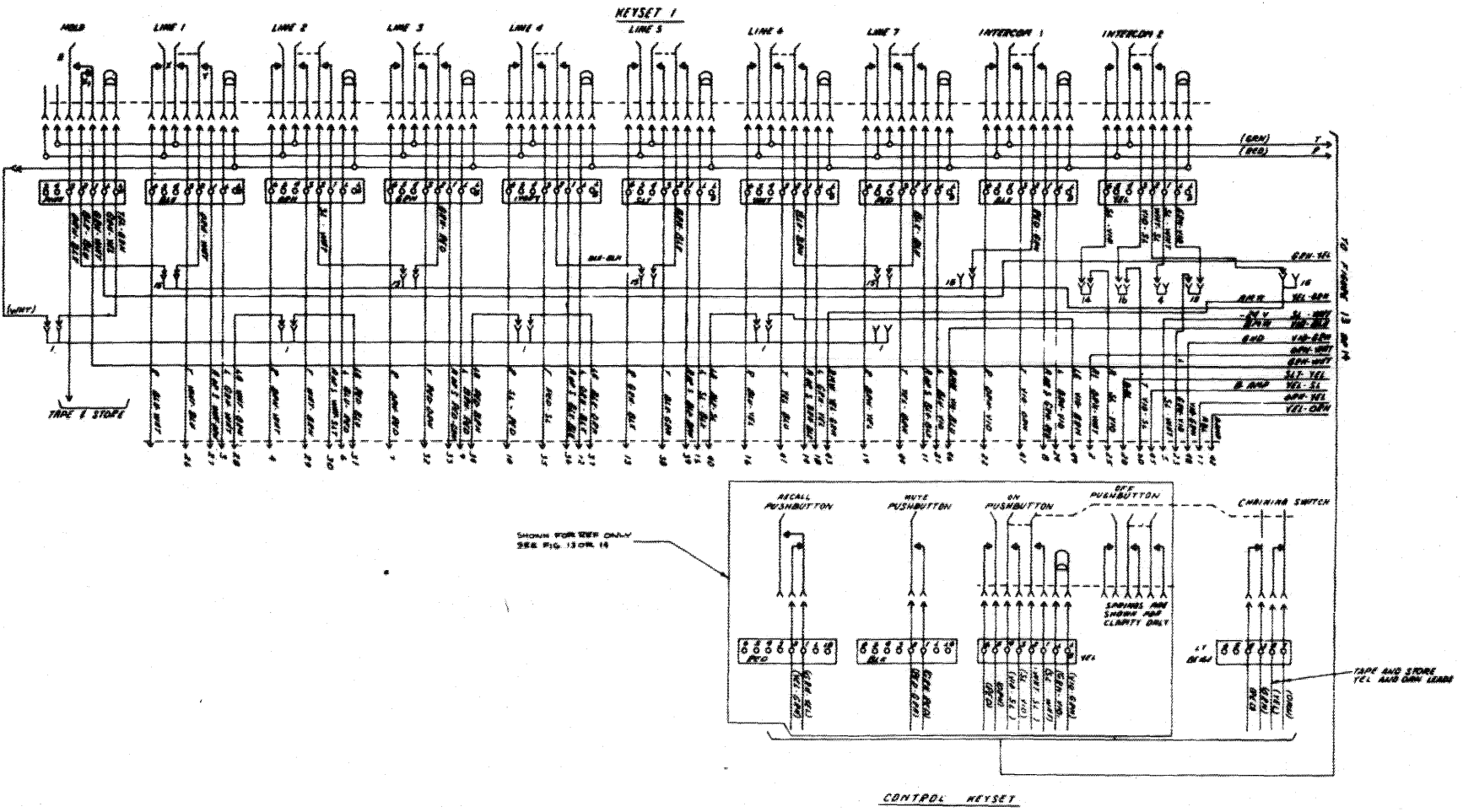


Figure 15. Type 882B Speakerphone Wiring Diagram for Nine-Line Keypad with SAPA or HFA.

Switching Functions

5.03 The line pickup pushbuttons of the Type 882B multiline speakerphone have various functions in placing, receiving, holding, and transferring calls. The following paragraphs describe these functions.

Placing Call

5.04 To place a call, proceed as follows:

- (a) Lift the handset. If the speakerphone mode of operation is desired, depress the ON pushbutton instead of lifting the handset.
- (b) Depress a line-pickup pushbutton that is unlit. An unlit line pushbutton denotes a line not in use.
- (c) Wait for dial tone and dial the desired number.
- (d) When the called party answers, begin conversation.

NOTE: To change from handset operation to speakerphone operation, depress the ON pushbutton and go on-hook. Adjust the speakerphone volume with the volume control knob located on the bottom left front of the speakerphone. To switch from speakerphone to handset operation, lift the handset and continue conversation. At the conclusion of the call, depress the OFF pushbutton and/or place handset on-hook. This restores the line-pickup pushbutton if pushbutton restoral is provided.

Answering Call

5.05 Incoming calls are announced by a ringer, by SAPA, or by an HFA (if so equipped). A flashing line-pickup pushbutton indicates the line the call is on. To answer the call, proceed as follows:

- (a) Lift the handset or depress the ON pushbutton (speakerphone operation).
- (b) Depress the flashing line-pickup pushbutton associated with the flashing lamp and begin conversation. Depending on the mode selected, the call will be in either the speakerphone or handset mode.

Placing Call On Hold

5.06 To place a call on hold, proceed as follows:

- (a) Originate or answer a call as described in paragraph 5.04 or 5.05, respectively.
- (b) Depress the HOLD pushbutton momentarily, the operated line-pickup pushbutton restores and winks, if provided, denoting a call on hold. Even if the telephone OFF pushbutton is depressed or the handset is returned to the cradle, the call is still held.

5.07 To remove the line from hold, depress the associated line-pickup pushbutton. The telephone ON pushbutton must also be depressed or the handset must be off-

hook. The associated lamp stops winking, if provided, and lights steadily.

Terminating Call

5.08 To terminate a call, return the handset to its cradle. If the ON pushbutton is lit, depress the OFF pushbutton. The depressed line-pickup pushbutton goes dark (and restores, if pushbutton restoral is provided).

Recall

5.09 The recall pushbutton is used as a substitute for hookswitch signaling. Depression of the recall pushbutton causes a momentary break in the line. The recall pushbutton is nonlocking and is independent of all other pushbuttons.

Miscellaneous Functions

5.10 There are other functions that can be accomplished with the various pushbuttons, such as intercom calls, conference calls, paging, etc. The method of operation depends upon the KTS used. For these operational procedures, refer to the appropriate KTS practice in the 484 division of GTE Practices.

6. FIELD MAINTENANCE

6.01 Field maintenance is normally limited to replacing handsets, dials, TCU's, line cords, or other easily accessible components. Complete assembly, disassembly, and adjustment procedures are contained in Section 997-156-800 but should only be performed in the shop.

Removal of Housing

6.02 The speakerphone housing must be removed to perform field maintenance procedures. To remove the housing, use the following procedure:

- (a) Spread the housing to free the tab at the top of the faceplate from the housing. Insert a screwdriver or other flat face tool under the faceplate and lift it out.
- (b) Lift out the facemat.
- (c) Under the facemat are two housing screws. Remove these screws and lift the housing off.
- (d) A hinged mounting plate is located under the housing. The speakerphone and rotary dial or TCU are mounted on the mounting plate. Swing the mounting plate towards the front of the speakerphone to expose the baseplate components such as the terminal board, transmission network, ringer, etc.

Replace Control Keystrip

6.03 The module and wire assembly under the control pushbuttons is connector ended. To remove, dislodge the

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three modules and pull the connector(s) in an upward direction. To remove the control pushbutton assembly, loosen the two screws and lift up and away from mounting brackets. Refer to Figures 11, 12, and 15 for proper re-wiring.

Handset Maintenance

6.04 Handset maintenance is limited to the replacement of the complete handset or the handset caps, capsules, and cord. To replace the handset caps, capsules, and cord, refer to the 473-802 subdivision of GTE Practices. To replace the complete handset in a Type 881B or Type 882B speakerphone, use the following procedure:

- (a) Remove the housing (refer to paragraph 6.02).
- (b) Remove the handset cord conductors from their respective terminals referring to the appropriate wiring diagram (Figures 6, 7, 9, 10, and 13).
- (c) Unhook the handset cord clamp and remove the handset and cord from the speakerphone.
- (d) Place the cord of the new handset into the speakerphone and hook the clamp into position.
- (e) Connect the handset cord conductors to their respective terminals, referring to the appropriate wiring diagram (Figures 6, 7, 9, 10, and 13).

7. MODIFICATIONS

Station-Busy Monitoring

7.01 To provide for reception of a station-busy signal at a monitoring station, proceed as follows:

- (a) Use the hold pushbutton as a busy lamp. Add a lamp, part No. HD-940003-A, in this position.

- (b) Connect the hold pushbutton leads and lamp ground leads as shown in Table 2.
- (c) Add a 383-ohm, 5-watt resistor (part No. D-284076-E9) between the YEL-GRN and RED-BRN leads with two connectors, part No. HD-150047-A.

Message Waiting Feature

7.02 To provide the message waiting feature, proceed as follows:

- (a) Install a lamp, part No. HD-940003-A, in the hold pushbutton position.
- (b) Make the changes listed in Table 3.

Signal Pushbutton

7.03 To change a pickup pushbutton to provide the signal-pushbutton feature, proceed as follows:

- (a) Turn the locking pins in a counter-clockwise direction to remove them from the keyset assembly.
- (b) Make the wiring changes listed in Table 4.

A-Lead Control

7.04 To modify a Type 881B speakerphone for use without A-lead control, make the wiring changes listed in Table 5.

I-Hold Feature

7.05 To provide the I-Hold feature for the desk-version speakerphone, make the wiring changes listed in Table 6.

Table 2. Station Busy Monitoring Connections.

| LEADS | COLOR | MONITORED STATION BUSY | | MONITORING STATION BUSY | |
|----------------------------------|---------|------------------------|------------|-------------------------|------------|
| | | MOVE FROM | CONNECT TO | MOVE FROM | CONNECT TO |
| Lamp Ground Leads from Connector | WHT-GRN | | | TB 1 | TB 3 |
| | RED-BLU | | | | |
| | RED-BRN | | | TB 1 | |
| | BLK-ORN | TB 1 | PWCA Y | | |
| Hold Pushbutton Leads | GRN-WHT | | | | |
| | GRN-YEL | | | TB 3 | |
| | YEL-GRN | | | STORED | |

NOTES:

1. Remove RED-BRN lead from terminal 1 and connect it to one end of a 383-ohm resistor (part No. HD-280019-A) using spare terminal 3. Remove YEL-GRN lead from stored position and connect it to the other end of the 383-ohm resistor using the spare terminal.
2. TB stands for terminal board. PWCA stands for printed wiring card assembly.

Table 3. Message-Waiting Connections.

| LEAD | | MOVE FROM | CONNECT TO |
|-----------------|--------------|-----------|------------|
| Any Lamp Ground | | TB 1 | TB 3 |
| Hold Pushbutton | YEL-GRN (LG) | STORED | TB 1 |
| | GRN-YEL (L) | | TB 3 |

NOTE: TB stands for terminal board.

Table 5. Type 881B Speakerphone Modification Connections for Use Without A-Lead Control.

| RINGING OPTIONS | LEADS | LEAD COLOR | ROTARY DIAL | | TCU | |
|-------------------------------------|--------------------------------|------------|--------------|------------|--------------|------------|
| | | | MOVE FROM | CONNECT TO | MOVE FROM | CONNECT TO |
| | Line Cord | BLK | L | 8 (STORE) | L | 8 (STORE) |
| | | YEL | H | 10 | H | 10 |
| | | GRN | W | L | Z | L |
| | | | STRAP W TO Y | | STRAP Y TO Z | |
| Metallic (Bridged) Ringing | Ringer Cap | | W | B | Z | B |
| Ground Divided L1 (-Ring) to Ground | Ringer Cap | | W | 10 | Z | 10 |
| Ground Divided L2 (+Tip) to Ground | Ringer | RED | N | 10 | N | 10 |
| ANI Service Tip Party | ANI Conversion Kit (HH-880018) | BRN | | Y | | Y |
| | | YEL | | F | | F |
| | | BLK | | 10 | | 10 |

Table 6. I-Hold Connections (Desk Version).

| LEAD | COLOR | MOVE FROM | CONNECT TO |
|-----------------|---------|-----------|---------------------|
| Hold Pushbutton | GRN-WHT | PWCA Y | TB 15 |
| | BLK-BLU | TB X | PWCA Y |
| | ORN-BLK | Stored | PWCA spare terminal |
| Any Lamp Ground | | | PWCA spare terminal |

NOTE: TB stands for terminal board. PWCA stands for printed wiring card assembly.