

TYPE 182 TELEPHONE



Technical bulletin **913**

AUTOMATIC ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS



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TYPE 182 TELEPHONE

1. DESCRIPTION

1.1 General

The type 182 STARLITE* is a compact telephone equipped with a lighted dial and may be used with or without an external type 33 ringer unit.

1.2 Physical

The type 182 telephone weighs about 3-1/2 pounds and is 8-1/2" long, 4-1/2" high, and 4-1/2" wide. The mounting base for the telephone is anodized aluminum and is covered on the underside with a soft rubberized cork pad to protect table and desk tops. The external ringer unit is 5-1/4" x 5-1/4" and is 2-1/4" high and is provided only when required.

The dial is mounted on a rectangular plastic number plate which is then mounted in the center of the telephone housing. The dial and the number plate are at a downward angle of 15 degrees to facilitate dialing. The plastic number plate is frost aluminum and is opaque except for the circular section under the finger holes of the clear plastic dial finger plate (figure 1). This circular section is translucent to permit the green light from the electroluminescent lamp to shine through. The numbers and/or letters (depending upon whether a numerical or metropolitan dial is supplied) are engraved in the translucent circular section under the finger holes of the dial finger plate and are filled with a black opaque compound to provide easy reading of the characters. The plastic number plate extends slightly over the front and rear of the center of the telephone housing (where the housing is indented to facilitate lifting the telephone).

To the left and to the right of the dial is a well (figure 1) which provides secure anchoring of the handset. The hookswitch lever consists of two bars (one in each well) for positive

operation of the hookswitch mechanism. The handset rests firmly over the dial with its transmitter and receiver downward, depressing the hookswitch lever in each well. The handset does not come into contact with the dial.

1.3 Features

The type 182 telephone has a self compensating transmission network which minimizes side-tone and balances the impedance characteristics of the line.

The lightweight retractile handset cord extends from the front left hand portion of the telephone (figure 1). The telephone line cord and the 110 volt 60 cycle a-c dial lamp cord extend from the rear of the telephone. Each of these cords is approximately six feet in length. Depending upon service requirements, the type 182 telephone is supplied with one of four dials:

- a. Numerical 1-0 dial.
- b. Metropolitan ABC dial.
- c. SATT A dial.
- d. SATT B dial.

The type 182 telephone is available in six colors:

- a. Sand Beige
- b. Classic Ivory
- c. Turquoise
- d. Forget-Me-Not Blue
- e. Camellia Pink
- f. Gardenia White

The dial number plate is frost aluminum, and the hookswitch lever bars are clear plastic.

The type 33 ringer unit (when required) is normally supplied in Classic Ivory, however, it may be obtained in any one of the colors listed above.

* Trademark of Automatic Electric Company.



Figure 1. Type 182 telephone.

An extremely low current electroluminescent dial lamp (0.2 watt) is provided with a rheostat for brightness control. The rheostat knob is a knurled circular plastic disc and extends from the lower front portion of the center of the telephone housing in a horizontal position (figure 1).

With the rheostat in the full resistance position, the dial lamp dims to a low brilliance. Two fixed resistors are included in the dial lamp circuit in addition to the rheostat to limit the a-c current to a safe value. The dial lamp requires no transformers; it need only be plugged into a standard 110 volt 60 cycle a-c receptacle to provide continuous operation.

2. INSTALLATION

2.1 Line Polarity

Line polarity is important at divided-ringing party line stations and in SATT exchanges.

Connection instructions throughout this bulletin assume that the interior wires between the protector (or P.B.X. switchboard, etc.) and the telephone location in the subscriber's premises have their polarities identified by these standard tracers:

- Red - negative (ring)
- Green - positive (tip)
- Yellow - ground

See figure 2 for a callout of wire identification.

The following R alliteration - Ring (-), Red, Right-hand, Ridged, Right-hand - will help in remembering these connections.

Ring (negative line) connects to:

- Red (or 1-Ridge) interior-wire conductor,
- Right-hand station-protector terminal screw,
- Ridged (tracer) drop-wire conductor, and
- Right-hand cable-terminal stud.

This R alliteration and figure 2 apply to any interior wire, and for a drop wire to a strand-mounted or sheath-mounted cable terminal, or to an unprotected pole-mounted or wall-mounted cable terminal.

2.2 Type 182 Telephone Without an External Ringer Unit

The type 182 telephone must be placed within six feet of a 110 volt a-c receptacle to provide current for the dial lamp. Consult the subscriber for his choice on the placement of the telephone. After the location of the telephone has been determined, mount the terminal block where it will not be conspicuous and at the same time allow ample line cord length.

Terminal block mounting:

- a. Loosen the terminal block cover screw and remove the cover.

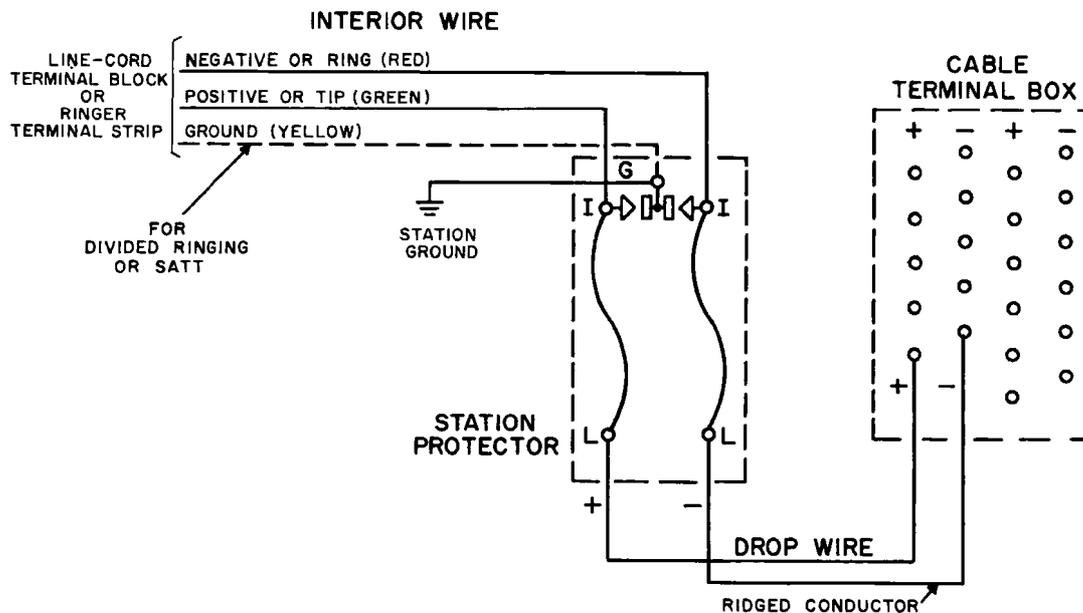


Figure 2. Typical connection to station protector.

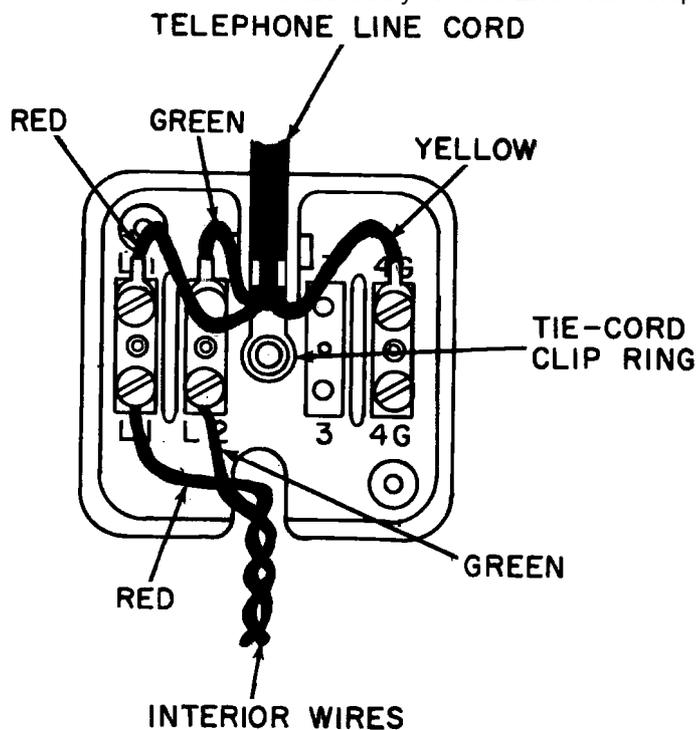


Figure 3. Terminal block connections for standard (NON-SATT) stations.

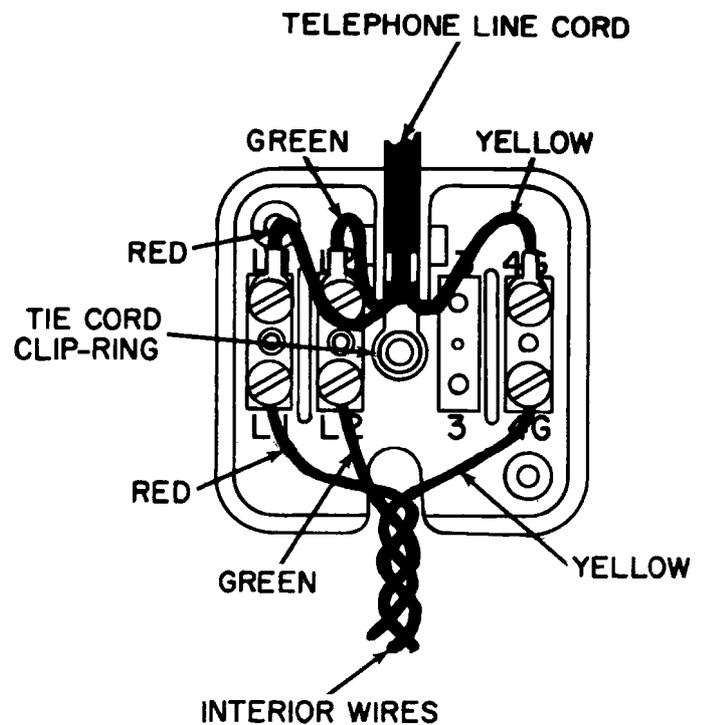


Figure 4. Terminal block connections for SATT A or SATT B stations.

- b. Mount the terminal block using the two screws supplied.
- c. Slip the tie-cord clip ring over the terminal block cover screw post.

Terminal block connections for standard (NON-SATT) and SATT A or SATT B service:

- a. Connect the red interior wire to terminal L1 (figures 3 and 4).
- b. Connect the green interior wire to terminal L2.
- c. Connect the yellow interior wire (if used) to terminal 4G.
- d. Connect the red line cord wire to terminal L1.
- e. Connect the green line cord wire to terminal L2.
- f. Connect the yellow line cord wire to terminal 4G.

2.3 Type 182 Telephone With an External Ringer Unit

When a ringer is required with the type 182 telephone, a type 33 ringer unit should be provided. Section 2.4 provides information concerning description, assembly, mounting, and wiring of the type 33 ringer unit.

2.4 Type 33 Ringer Unit

2.4.1 Description.

The type 33 ringer unit uses either straight-line, harmonic, or superimposed ringers to provide an audible signal. The type 33 ringer unit can be equipped with all type 45 ringer assemblies. The proper ringer capacitor is included with the ringer assembly (figure 5). When superimposed ringers are desired, a cold cathode tube is included in the ringer unit instead of the ringer capacitor (figure 6). The ringer unit also contains a terminal strip, where the ringer wiring, the telephone line cord, and the interior wires (from the station protector) are connected. The terminal strip eliminates the need for the line cord terminal block, which is required when the telephone is used without a ringer unit.

The type 33 ringer unit is shipped unassembled. This enables the minor assembly and wiring operations to be done in the field and permits greater flexibility in supplying the various ringer assemblies and ringer box colors from stock. When the type 33 ringer unit is used with D-56548 type 45 ringer assemblies, the necessary assembly hardware is provided. When the type 33 ringer unit is used with D-56515, D-56516, and D-56517 type 45 ringer assemblies, a capacitor mounting kit and capacitor (if required) must be ordered.

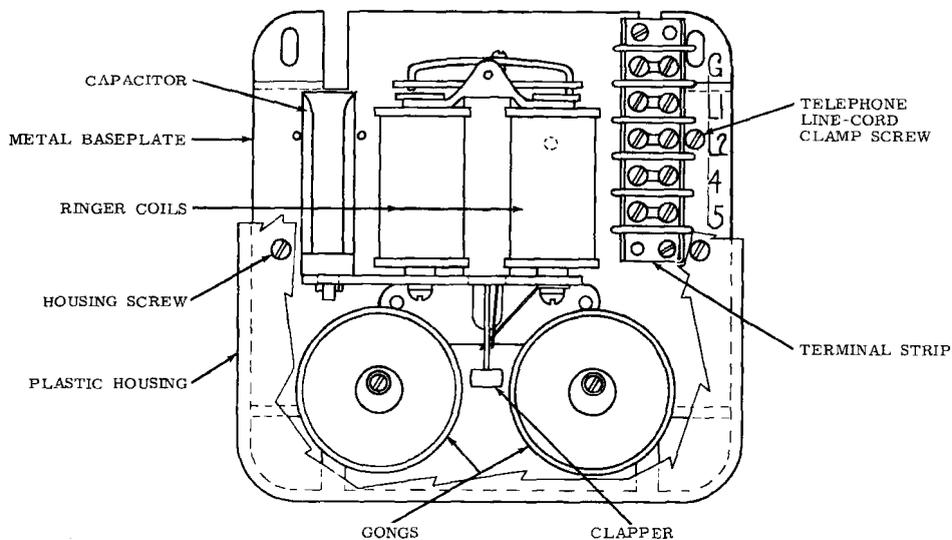


Figure 5. Type 33 ringer unit for straight-line and harmonic ringing.

2.4.2 Assembly.

To assemble the type 33 ringer unit (figure 5), fasten the ringer assembly to the baseplate with the three mounting screws provided. The terminal strip is supplied already mounted to the terminal strip bracket on the ringer box baseplate, and the ringer capacitor is supplied mounted to the ringer assembly heelpiece. After mounting the ringer assembly, follow the wiring instructions, in section 2.4.4, for the ringing service being provided. For superimposed ringers (figure 6), it will also be necessary to mount the cold cathode tube on the baseplate using the self-tapping screw provided before following the wiring instructions. After the wiring of the ringer unit has been completed, place the plastic housing over the

baseplate with the large cutout below the ringer gongs and tighten the two housing screws (figure 5 or 6).

2.4.3 Mounting.

Mount the type 33 ringer unit in a convenient location where ample telephone line cord length will be provided and be inconspicuous. The type 33 ringer unit may be mounted with the baseplate in a horizontal or vertical plane. If the type 33 ringer is mounted with the baseplate in a vertical plane, the two ringer gongs should be at the bottom. Ringer unit mounting screws are not provided because of the various types of surfaces on which the ringer box can be mounted.

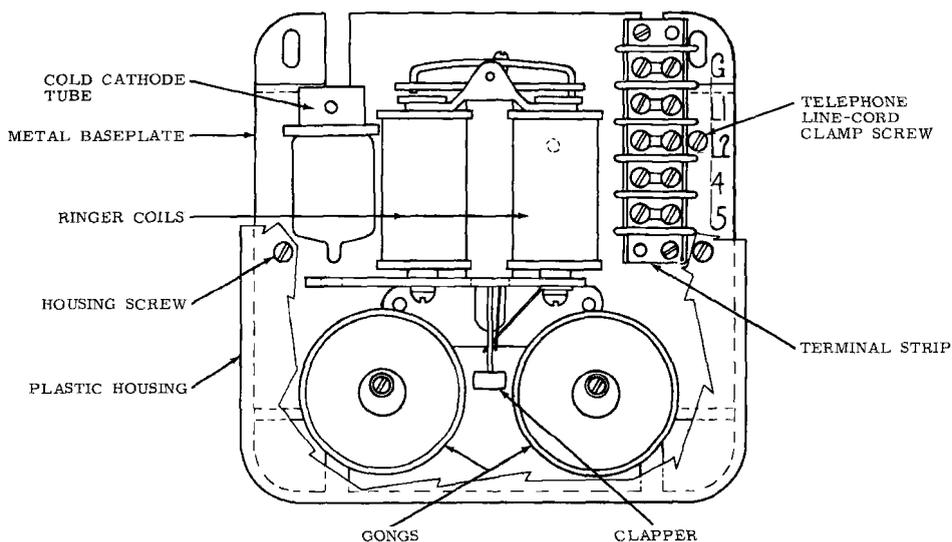


Figure 6. Type 33 ringer unit for superimposed ringing.

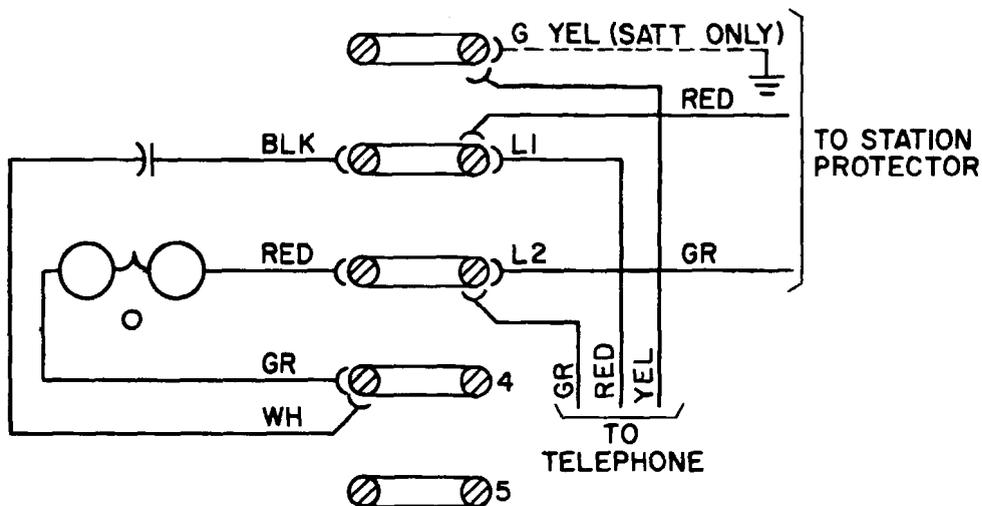


Figure 7. Type 33 ringer unit wiring for bridged ringing.

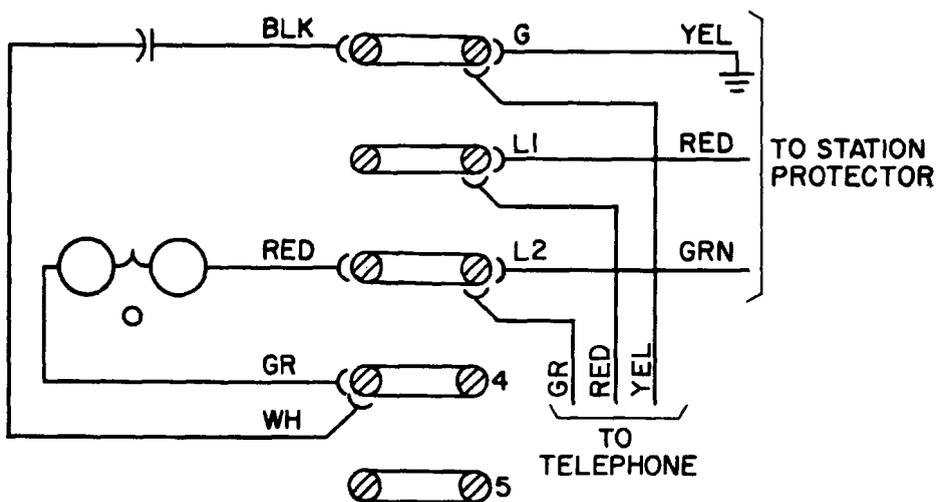


Figure 8. Type 33 ringer unit wiring for divided + (tip) ringing.

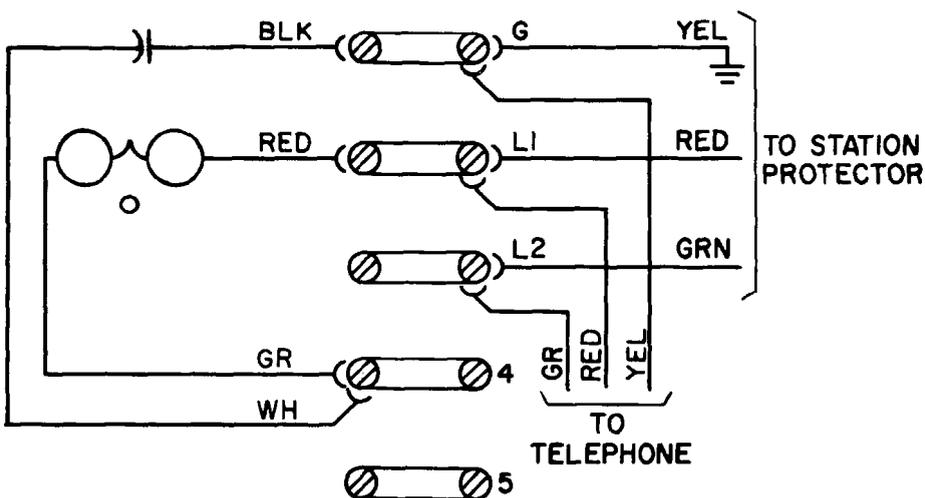


Figure 9. Type 33 ringer unit wiring for divided - (ring) ringing.

2.4.4 Wiring.

- a. Bridged ringing. The connections for bridged ringing are shown in figure 7 and are summarized in the following steps:
- (1) Connect the black capacitor wire to ringer box terminal L1.
 - (2) Connect the red ringer wire to ringer box terminal L2.
 - (3) Connect the green ringer wire and white capacitor wire to ringer box terminal 4.
 - (4) Connect the red interior wire and the red telephone line cord wire to ringer box terminal L1.
 - (5) Connect the green interior wire and the green telephone line cord wire to ringer box terminal L2.
 - (6) Connect the yellow telephone line cord wire to ringer box terminal G.
 - (7) For SATT service connect the yellow interior wire to ringer box terminal G.
 - (8) Slip the telephone line cord strain relief clamp under the strain relief clamp screw (in the ringer box base-plate) and tighten the screw.
 - (9) Fasten the plastic housing to the base-plate (see section 2.4.2).
- b. Divided ringing on the +(tip) line. For divided ringing on the +(tip) line refer to figure 8 and follow these steps:
- (1) Connect the black capacitor wire to terminal G.
 - (2) Connect the red ringer wire to terminal L2.
 - (3) Connect the white capacitor wire and green ringer wire to terminal 4.
 - (4) Connect the red, green, and yellow telephone line cord wires and the interior wires to terminals L1, L2, and G respectively.
 - (5) Fasten the telephone line cord clamp to the strain relief clamp screw.
 - (6) Fasten the plastic housing to the base-plate (see section 2.4.2).
- c. Divided ringing on the -(ring) line. For divided ringing on the -(ring) line refer to figure 9 and follow these steps:
- (1) Connect the red ringer wire to terminal L1.
 - (2) Connect the black capacitor lead to terminal G.
 - (3) Connect the green ringer wire and white capacitor wire to terminal 4.
 - (4) Connect the red, green, and yellow telephone line cord wires and interior wires to terminals L1, L2, and G respectively.
 - (5) Fasten the telephone line cord clamp to the strain relief clamp screw.
 - (6) Fasten the plastic housing to the base-plate (see section 2.4.2).
- d. Superimposed ringing, station No. 1. For superimposed ringing at station No. 1, refer to figure 10 and follow these steps:
- (1) Connect the red ringer wire and yellow tube lead to terminal 4.
 - (2) Connect the black tube lead, red tube lead, yellow telephone line cord wire, and yellow interior wire to terminal G.
 - (3) Connect the green telephone line cord wire and green interior wire (from station protector) to terminal L2.
 - (4) Connect the green ringer wire, red telephone line cord wire, and red interior wire to terminal L1.
 - (5) Fasten the telephone line cord clamp to the strain relief clamp screw.
 - (6) Fasten the plastic housing to the base-plate (see section 2.4.2).
- e. Superimposed ringing, station No. 2. For superimposed ringing at station No. 2, refer to figure 10 and wire the ringer unit as follows:
- (1) Follow steps (1) and (2) in paragraph d, above.
 - (2) Connect the green ringer wire, green telephone line cord wire, and green interior wire to terminal L2.
 - (3) Connect the red telephone line cord wire and red interior wire to terminal L1.

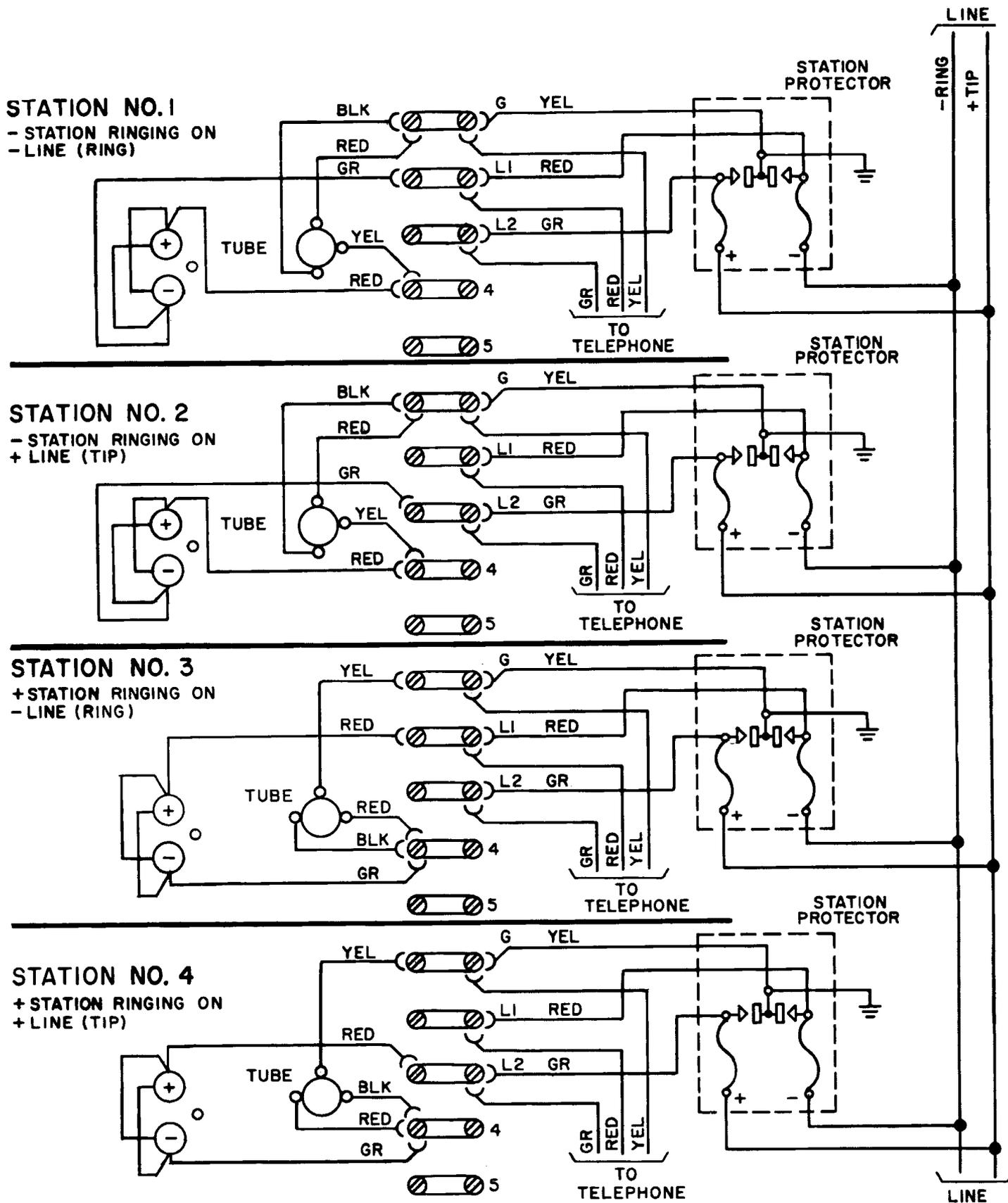


Figure 10. Type 33 ringer unit wiring for superimposed ringing.

- (4) Fasten the telephone line cord clamp to the strain relief clamp screw.
- (5) Fasten the plastic housing to the base-plate (see section 2.4.2).

f. Superimposed ringing, station No. 3. For superimposed ringing at station No. 3, refer to figure 10 and proceed as follows:

- (1) Connect the green ringer wire, black tube lead, and red tube lead to terminal 4.
- (2) Connect the yellow tube lead, yellow telephone line cord wire, and yellow interior wire to terminal G.
- (3) Connect the green telephone line cord wire and green interior wire to terminal L2.
- (4) Connect the red telephone line cord wire, red interior wire, and red ringer wire to terminal L1.
- (5) Fasten the telephone line cord clamp to the strain relief clamp screw.
- (6) Fasten the plastic housing to the base-plate (see section 2.4.2).

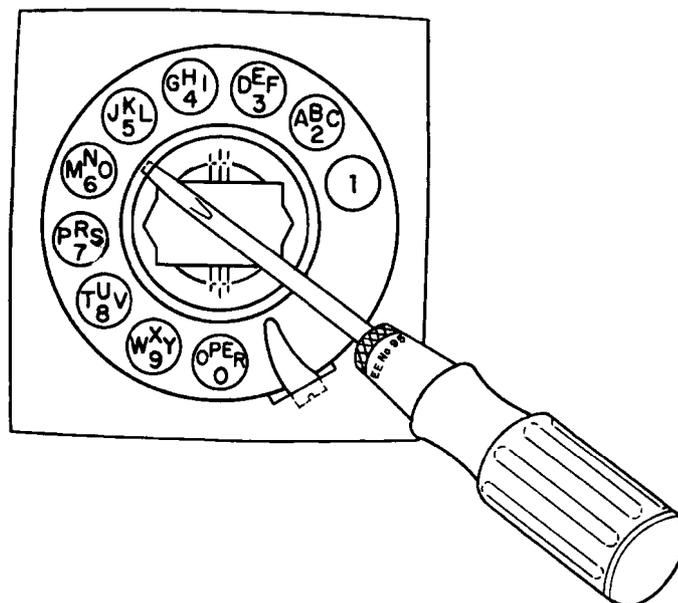


Figure 11. Use of screwdriver to remove escutcheon ring.

2.5 Number Card

Insert a screwdriver (such as A. E. Co. H-880622-1) inside the edge of the escutcheon ring and (between finger holes 5 and 6) between the escutcheon ring and the transparent cover (figure 11). The escutcheon ring will unlatch allowing the escutcheon ring to be lifted off with a screwdriver.

Rotate the clamping plate counterclockwise (figure 12). Remove the number card, and print or stamp the number clearly on the card.

With the transparent cover in the escutcheon ring, add the number card and then the clamping plate. With the left thumb pressing lightly near one circular hole, use the other circular hole to turn the clamping plate clockwise and lock it. Hook the escutcheon ring locating lug into the dial near the finger stop. Insert the screwdriver (between finger holes 5 and 6) between the escutcheon ring and the transparent cover. Press the screwdriver tip until you hear or feel the clamping plate latch in.

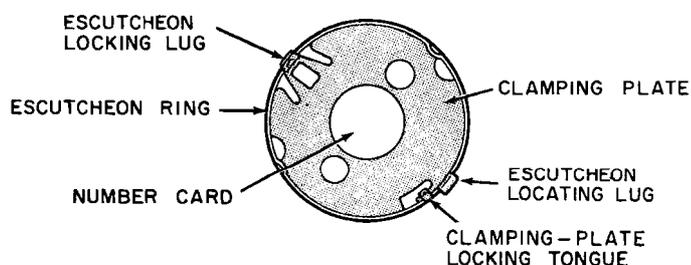


Figure 12. Number card in escutcheon ring.

g. Superimposed ringing, station No. 4. For superimposed ringing at station No. 4, refer to figure 10 and wire the ringer unit as follows:

- (1) Follow steps (1) and (2) in paragraph f, above.
- (2) Connect the red ringer wire, green telephone line cord wire, and green interior wire to terminal L2.
- (3) Connect the red telephone line cord wire and red interior wire to terminal L1.
- (4) Fasten the telephone line cord clamp to the strain relief clamp screw.
- (5) Fasten the plastic housing to the base-plate (see section 2.4.2).

h. Harmonic ringing. For harmonic ringing, the ringer is wired as for bridged ringing or divided-ringing service. Specified frequency ringers and associated ringer capacitors are incorporated for harmonic-ringing service.

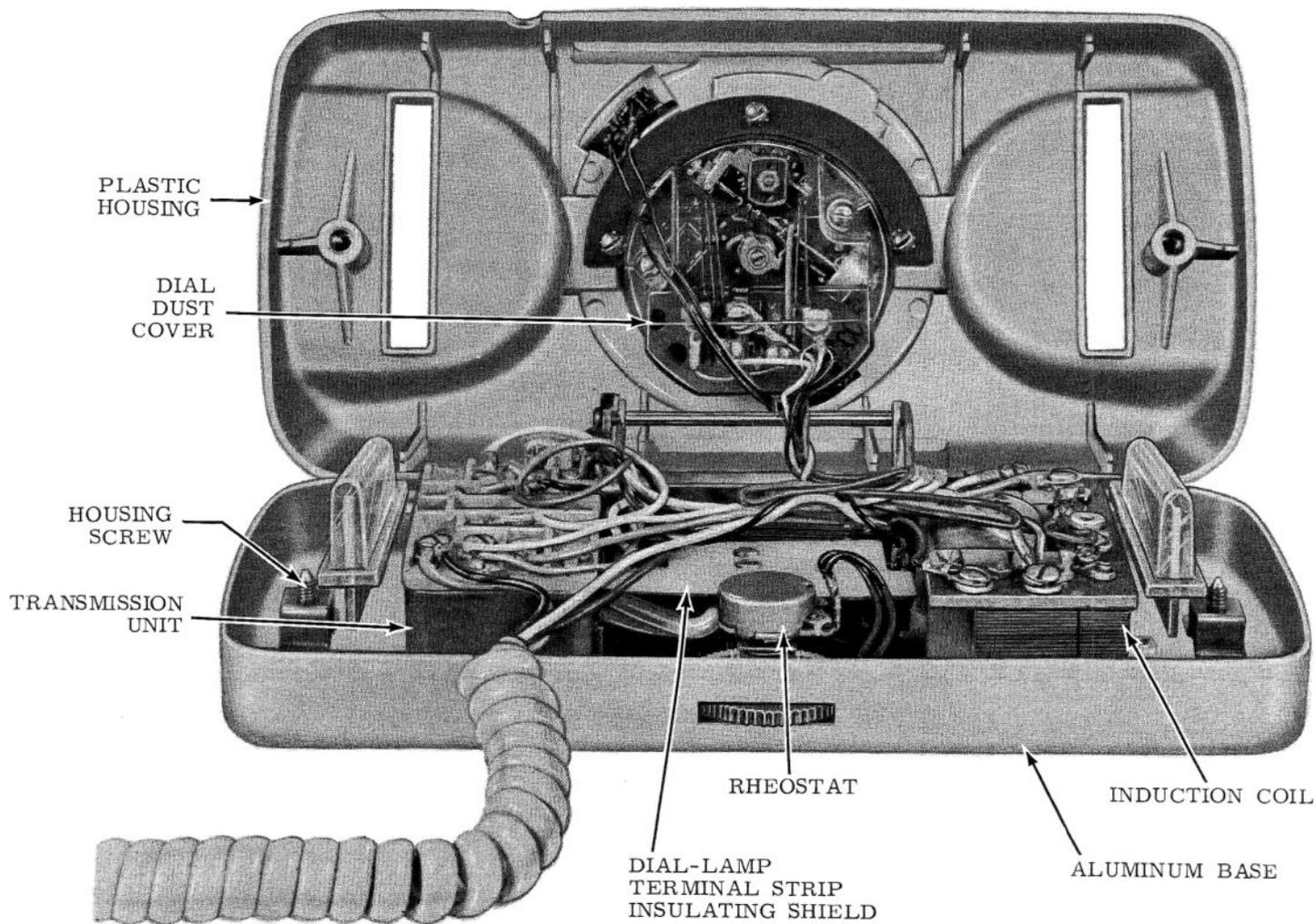


Figure 13. Type 182 telephone with housing removed.

3. MAINTENANCE

3.1 Housing Removal

Remove the 110 volt a-c dial-lamp line cord from the receptacle. Loosen the two base mounting screws. Lift the housing carefully. The dial will remain attached to the housing. The wiring and apparatus are now accessible (figure 13).

3.2 Dial Removal and Replacement

If replacement of the dial is necessary, the steps below should be followed: A medium sized screwdriver and a new dial assembly are required for the replacement.

Remove the telephone housing as described in section 3.1.

Remove the two screws (item 3, figure 14) from the lamp terminal strip insulating shield (figure 14).

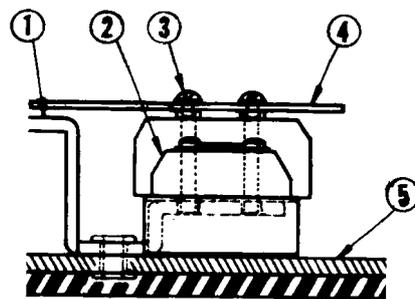
The following leads coming from the dial assembly are disconnected at the transmission unit and induction coil (figure 19).

- a. Yellow dial lead from transmission unit terminal No. 11.
- b. Blue dial lead from transmission unit terminal No. 1.
- c. White dial lead from transmission unit terminal No. 2.
- d. Red dial lead from induction coil terminal No. 4.
- e. Brown dial lead (SATT only) from transmission unit terminal No. 9.
- f. Black dial lamp leads from dial lamp terminal strip.

Remove the three dial mounting-plate screws (item 4, figure 16) located on the underside of the housing. The complete dial assembly is now free and can be lifted from the top of the plastic telephone housing.

The entire dial assembly (dial mounted on the dial number plate) should be replaced as a unit. Order numbers for the four different dial types are shown below:

Dial	1-0 dial	ABC dial	SATT A dial	SATT B dial
Order Number	D-84942-A	D-84935-A	D-84936-A *	D-84937-A *
* Designate party or spotter lobe location as second suffix.				



1. Terminal strip and rheostat mounting bracket.
2. Terminal strip.
3. Terminal strip insulating-shield screw.
4. Terminal strip insulating shield.
5. Baseplate.

Figure 14. Dial lamp terminal strip assembly.

For inspection of dial pulsing operations, remove the two dial dust-cover screws (item 19, figure 16) and lift off the dust-cover. The dial assembly should not be removed unless replacement is necessary due to dial lamp failure or poor dial operation which cannot be corrected in the field. Proceed in the reverse order of the steps indicated above to replace the dial assembly.

3.3 Transmitter and Receiver Capsule Replacement

The type 182 telephone uses a type 810 handset only. The piece number for the type 810 transmitter capsule is D-38379-A. The piece number for the type 810 receiver capsule is D-51024-A. Type 810 handset components are shown in figure 17. To replace the transmitter and/or receiver capsule(s), proceed as follows:

- a. Hold the handset horizontally so that the capsules will not fall out.
- b. Remove the transmitter cap.
- c. Remove the transmitter capsule.
- d. Replace the capsule.
- e. Replace the transmitter cap.
- f. Remove the receiver cap.
- g. Lift the receiver capsule.

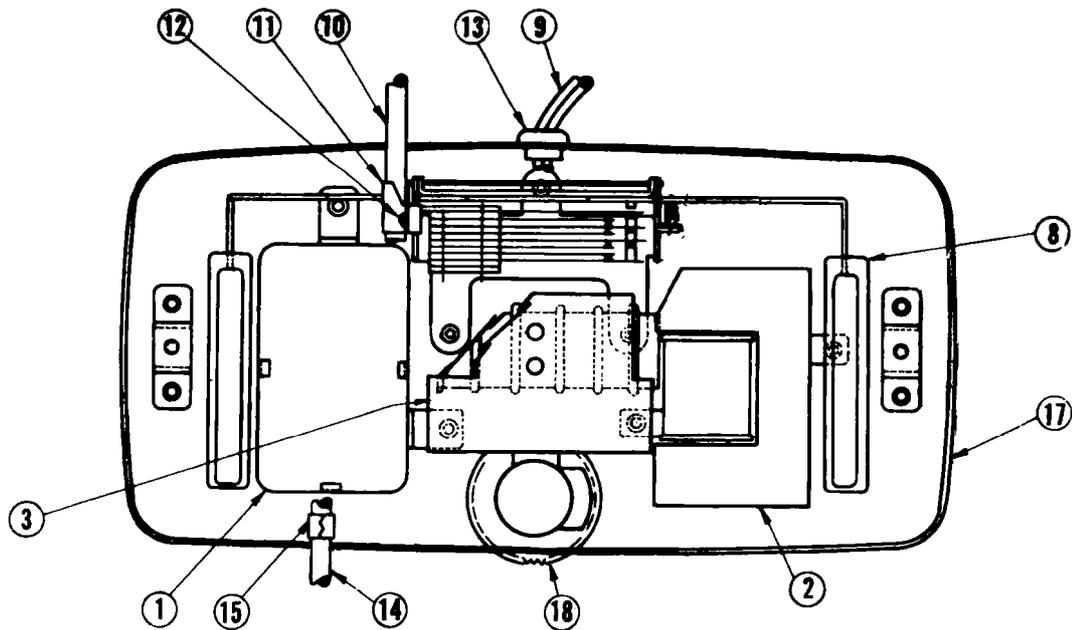


Figure 15. Baseplate assembly with associated components.

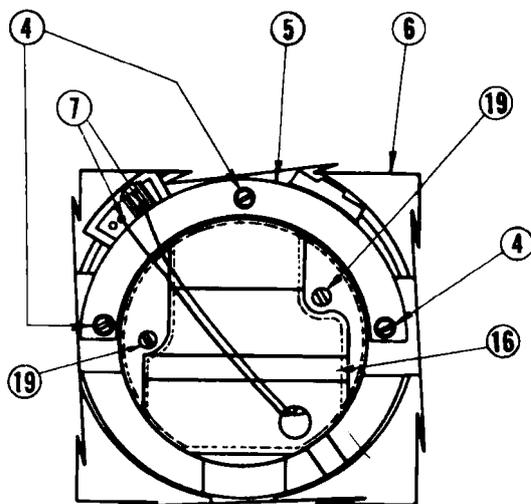


Figure 16. Dial mounted to housing.

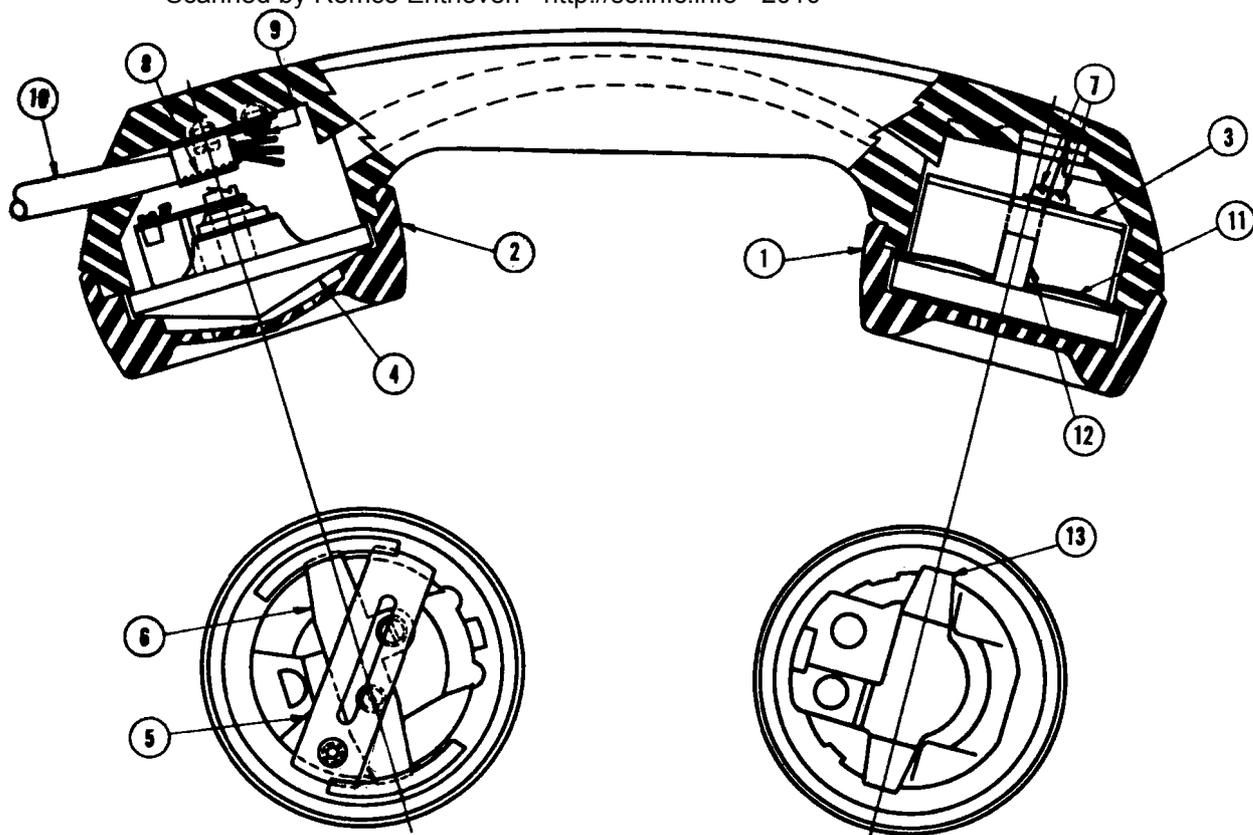
1. Transmission unit.
2. Induction coil.
3. Dial-lamp terminal strip insulating shield.
4. Dial mounting-plate screw.
5. Dial mounting plate.
6. Plastic telephone housing.
7. Dial lamp leads.
8. Hookswitch lever bar.
9. 110 volt a-c dial-lamp line cord.
10. Telephone line cord.
11. Telephone line cord clamp.
12. Telephone line cord clamp screw.
13. Dial-lamp line cord strain relief bushing.
14. Handset retractile cord.
15. Handset cord clamp.
16. Dial dust cover.
17. Metal telephone mounting base.
18. Rheostat knob.
19. Dial dust cover screws.

- h. Disconnect the wires from the back of the receiver capsule.
- i. Connect the wires to the new receiver capsule terminals as shown in figure 18.
- j. Insert the receiver capsule and the receiver float spring so that its key is in one of the spring slots.
- k. Replace the receiver cap.
- l. Try a test call.

3.4 Handset Cord Replacement

Use the following order numbers for a new cord:

D-543320-B	Sand Beige
D-543320-E	Classic Ivory
D-543320-G	Turquoise
D-543320-K	Forget-Me-Not Blue
D-543320-L	Camellia Pink
D-543320-M	Gardenia White



1. Receiver cap.
2. Transmitter cap.
3. Receiving capsule.
4. Transmitting capsule.
5. Transmitter center contact spring.
6. Transmitter rim contact spring.
7. Receiver terminal screws.
8. Strain relief clamp.
9. Strain relief clamp screw.
10. Handset cord.
11. Receiver float spring.
12. Receiver capsule key.
13. Receiver capsule key slot.

Figure 17. Type 810 handset.

Follow the instructions for removing the telephone housing (section 3.1). Then, disconnect the green and black wires from transmission unit terminal No. 3. Disconnect the red wire from induction coil terminal No. 5, and the yellow wire from induction coil terminal No. 4.

Release the handset cord clamp from the telephone baseplate and pull out the old cord.

Insert the new cord and align it with the groove for this cord in the telephone baseplate.

Connect the green and black wires to terminal No. 3 of the transmission unit, the red wire to terminal No. 5 of the induction coil, and the yellow wire to terminal No. 4 of the induction coil. Pull out the slack and engage the cord clamp.

Follow the instructions in section 3.3 for removing the handset capsules.

Lift out and remove the transmitter center contact spring. When the spring is free, turn the center contact spring with the studs down

and loosen the screw to remove the green wire (figure 18). Loosen the screw on the rim contact spring and remove the red wire.

Loosen the strain relief clamp screw and free the clamp from the handset housing. Remove the black and yellow wires from the receiver capsule terminals and pull out the old cord.

Insert the leads of the new cord through the cord entrance hole in the transmitter end of the handset and through the hollow hand grip until the black and the yellow leads appear in the receiver well. Connect the black and the yellow leads to the receiver capsule as shown in figure 18 and tighten the receiver capsule terminal screws. Replace the receiver capsule and the receiver float spring in the receiver shell and screw on the receiver cap.

Fasten the strain relief clamp to the transmitter spring at the bottom of the transmitter well. Connect the red wire to the rim contact spring and tighten the terminal screw. Connect the green wire to the center contact spring, tighten the terminal screw, and replace the spring in the transmitter shell with the stud ends up.

Replace the transmitter capsule and screw on the transmitter cap. Replace the telephone housing and make a test call.

3.5 Dial Lamp Cord Replacement

Use the following order numbers with the proper color suffix for the new cord:

D-543144-B	Sand Beige
D-543144-E	Classic Ivory
D-543144-G	Turquoise
D-543144-K	Forget-Me-Not Blue
D-543144-L	Camellia Pink
D-543144-M	Gardenia White

Follow the instructions for removing the telephone housing (section 3.1), and remove the two terminal strip insulating shield screws (item 3 in figure 14).

Locate the two wires from the dial lamp cord at the terminal strip and loosen their associated terminal screws (figure 19). Pull out the strain relief bushing in the center of the rear of the baseplate by using pliers. Pry the two sections of the bushing apart to release the cord; remove the old cord.

Insert the new cord leads through the cord hole in the baseplate. Reconnect the ends of the

cord to the lamp terminal strip terminals. Draw the cord out to reduce the slack. Replace the strain relief bushing on the cord, and push it into the cord hole in the baseplate.

Replace and fasten the lamp terminal strip insulating shield. Also, replace the telephone housing and plug the 110 volt a-c line cord into a receptacle.

Rotate the rheostat knob to see if the lamp is operating properly.

3.6 Telephone Line Cord Replacement

Use the following order numbers for the new cord, specifying the proper color suffix:

D-543322-B	Sand Beige
D-543322-E	Classic Ivory
D-543322-G	Turquoise
D-543322-K	Forget-Me-Not Blue
D-543322-L	Camellia Pink
D-543322-M	Gardenia White

Follow the procedure for removing the telephone housing (section 3.1). Disconnect the following leads from the transmission unit (figure 19):

- Yellow line cord wire from terminal No. 9.
- Red line cord wire from terminal No. 10.
- Green line cord wire from terminal No. 8.

Insert the new line cord; align the cord with the line-cord groove in the telephone baseplate, and fasten the line cord under the line cord clamp (item 11, figure 15). Reconnect the line cord wires to the transmission unit (figure 19) as follows:

- Yellow line cord wire to terminal No. 9.
- Red line cord wire to terminal No. 10.
- Green line cord wire to terminal No. 8.

Replace the telephone housing.

Disconnect the old cord from the wall mounted terminal block by removing the terminal block cover screw and loosening the terminal screws. If the ringer unit is used, remove the ringer unit cover and disconnect the old cord leads from the terminal strip.

Connect the new leads to the terminal block or ringer unit terminal strip according to the service being supplied (refer to section 2.2).

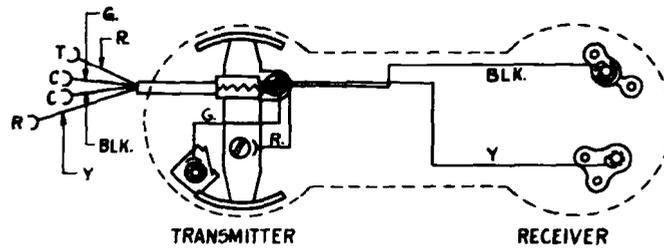
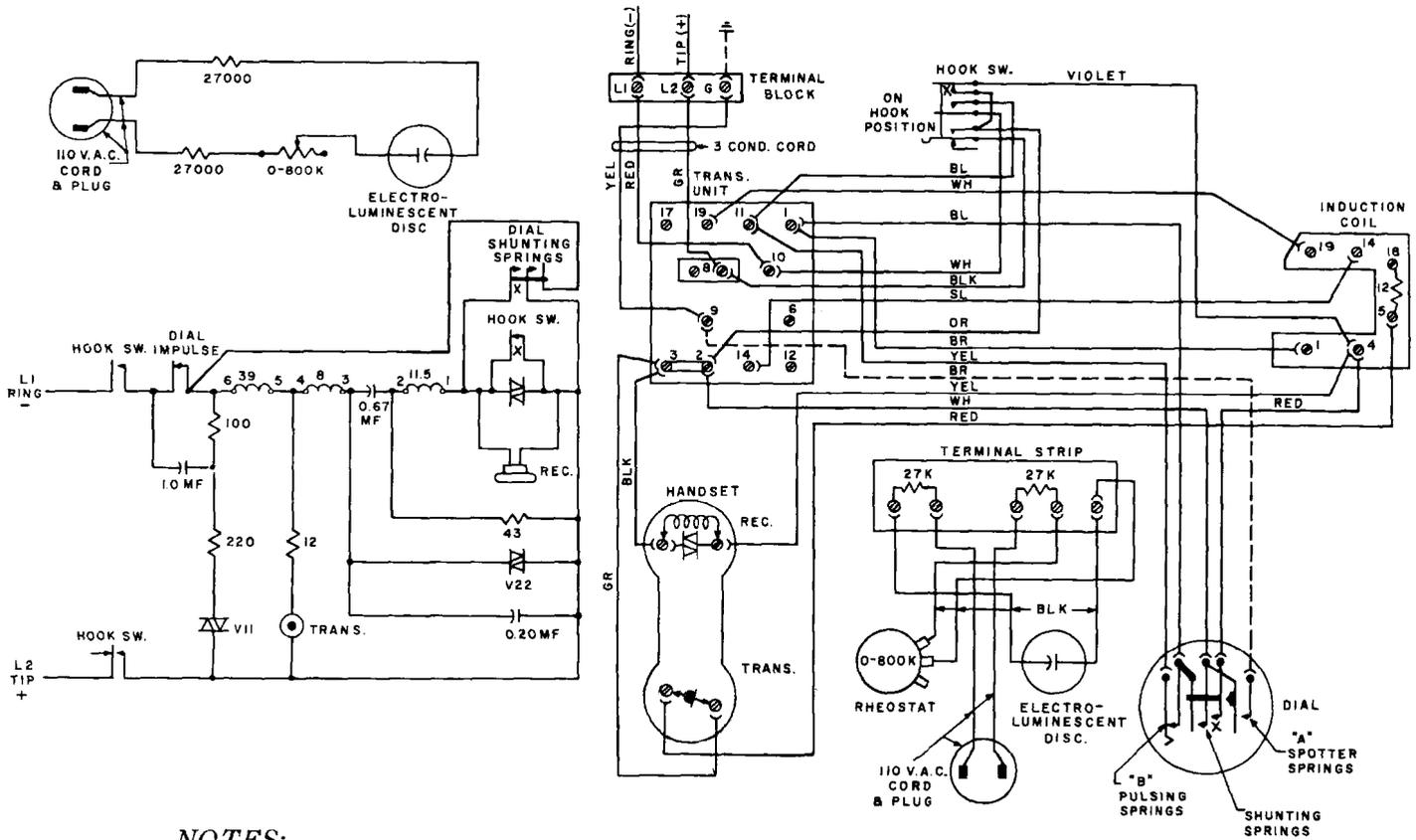


Figure 18. Type 810 handset wiring.



NOTES:

1. "X" contacts to break last.
2. "A" spotter springs to operate when "B" pulsing springs are closed.
3. Polarity of line must be maintained as shown.
4. Numerals in parenthesis indicate coil break out leads.
5. Dotted lines indicate SATT dial connection.

Figure 19. Schematic and wiring diagram for the type 182 telephone.

AUTOMATIC ELECTRIC

Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

Makers of Telephone, Signaling, and Communication Apparatus . . . Electrical Engineers, Designers, and Consultants

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