A.E.CO. TYPE 860B KEY TELEPHONE
DESCRIPTION AND INSTALLATION

1. GENERAL

1.01 This section describes the A.E.Co. Type 860B Key Telephone Set, and provides instructions for its installation. Also, included are instructions for incorporating various options, operating the set, and performing field maintenance.

2. DESCRIPTION

Intended Use

2.01 The Type 860B Key Telephone Set is intended for use as customer's equipment with A.E.Co. Type 10A, 10A1, 10A2, and 16A key telephone systems. It can originate, answer, signal, and hold calls on central office, PABX, and tie lines; and intercommunication circuits associated with these key telephone systems. The 860B Telephone Set can also be used with W.E.Co. Type 1A, 1A1, 1A2, and 6A key telephone systems, and comparable systems of other manufacturers.

Dialing Provisions

2.02 The Type 860B Key Telephone Set is manufactured in both rotary dial and Touch Calling configurations. Figure 1 shows the rotary dial version, while the Touch Calling version is shown in Figure 2.

Housing and Panel

2.03 The Type 860B Key Telephone Set housing is 10½ inches long, 8 inches deep, and 4¼ inches high. The overall size, including the handset and cradle, is 12-7/8 inches long, 8½ inches deep, and 4¼ inches high. A Type 51A dial (Figure 1), or a Touch Calling unit (Figure 2) is located in the left half of the sloping front panel. The keys are located in the right half of the front panel. The front panel is equipped with a clip-on face plate mounting frame (Figure 3) which accommodates

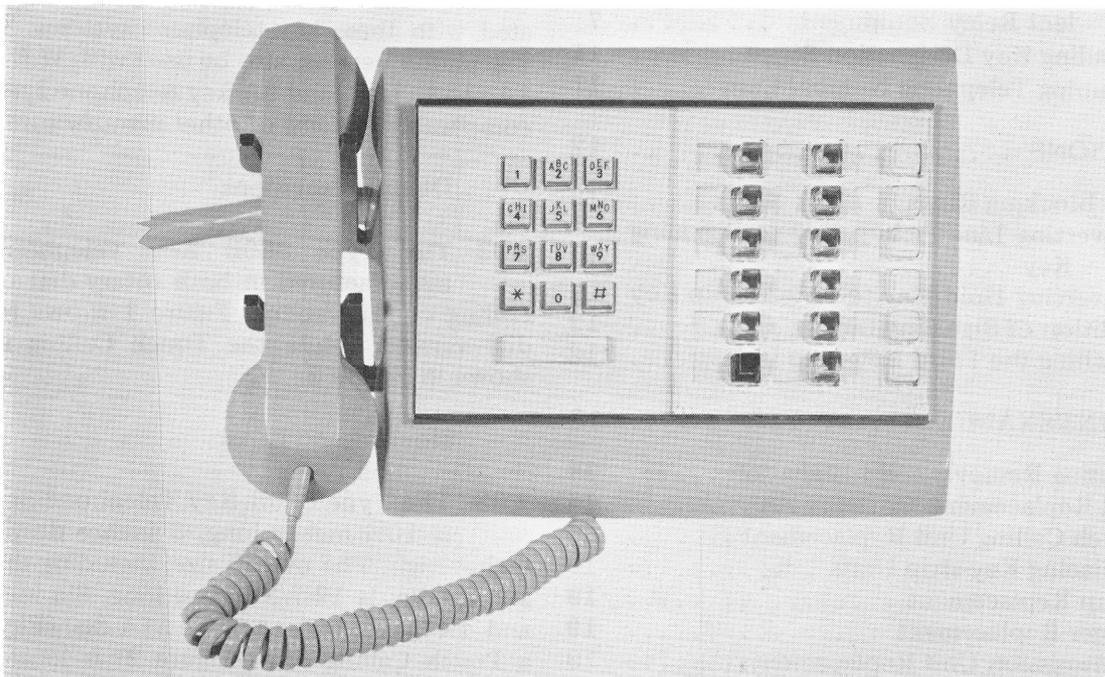Figure 1. Type 860B Key Telephone Set With Rotary Dial.

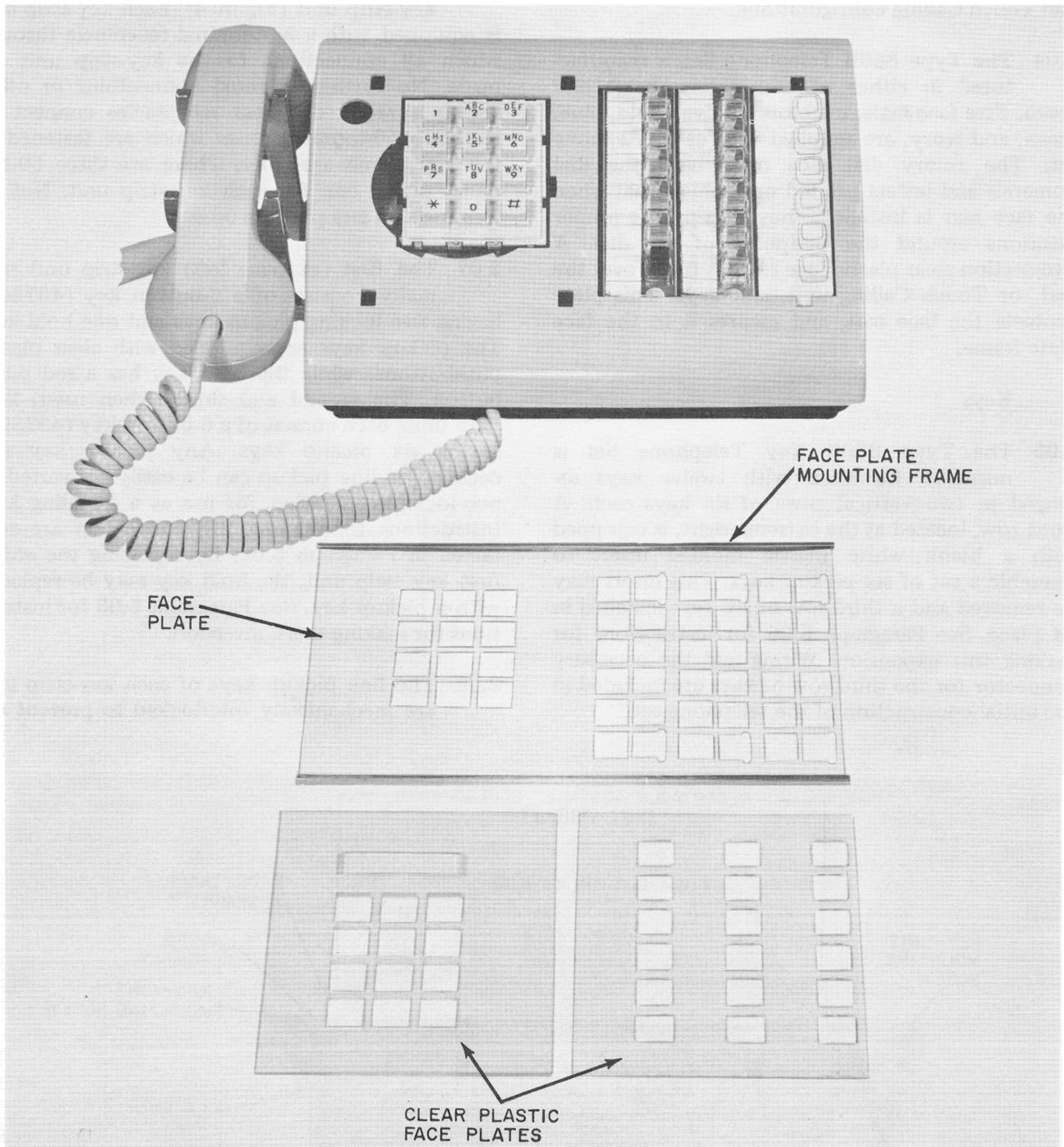Figure 2. Type 860B Key Telephone Set With Touch Calling Unit.

Figure 3. Touch Calling Type 860B Key Telephone Set With Face Plate Assembly Removed.

face mats and face plates for both the rotary dial and Touch Calling configurations.

2.04 The Type 860B Telephone Set is manufactured in either of two colors, beige and green. Five face mats, in colors of silver, gold, blue, green, and ivory, are supplied with each telephone set. The rotary dial face mats have the dial numerals and letters printed on them so that when the face mat is installed, they occupy the proper positions around the periphery of the dial. A two-section clear plastic face plate is fitted over the dial, or Touch Calling unit, and keys. This plate protects the face mat, and secures it to the face plate frame.

Keys

2.05 The Type 860B Key Telephone Set is normally furnished with twelve keys arranged in two vertical rows of six keys each. A third row, located at the extreme right, is equipped with a blank white plastic molded insert to resemble a set of six pickup keys. This insert may be removed and a third row of six keys installed in its place. See Paragraph 5.06 for instructions for making this expansion. Wiring and the necessary connector for the third row of keys are included in the initial construction of the telephone set.

2.06 Each vertical row of six keys is made up of a key-strip unit (Figure 4). Each key-strip unit is equipped with a 50-terminal receptacle through which all connections to the key-strip unit are made. No further soldered connections or other wiring is required. These receptacles connect directly to 50-terminal plugs which are fastened to the key frame assembly. There are three 50-terminal plugs, one for each key-strip unit. Not all terminals on any plug are used.

2.07 The first (extreme left) key-strip unit normally consists of a 6-button key (437301) having five locking pickup keys and one hold key. The pickup keys are equipped with clear plastic pushbuttons, while the hold key has a red pushbutton. The second and third (when used) key-strip units each consist of a 6-button key (437302) having six pickup keys. Any pickup key not needed for line pickup can be easily converted to non-locking operation for use as a signaling key. Instructions for making this conversion are contained in Paragraph 5.02. By replacing the entire first key strip unit, the hold key may be replaced with a pickup key. See Paragraph 5.03 for instructions for making this conversion.

2.08 The line pickup keys of each key-strip unit are mechanically interlocked to prevent the
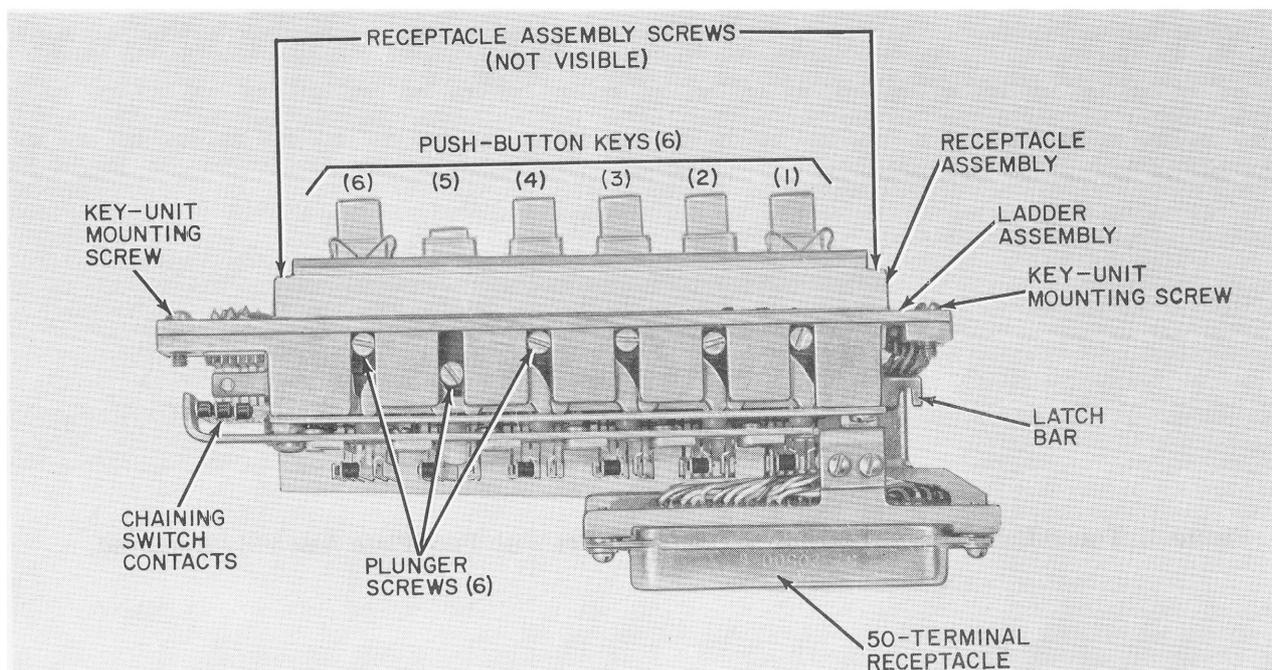

Figure 4. Key-strip Unit Comprising Six Line Pickup Keys.

operation of more than one line pickup key in a key-strip unit at a time. The operation of a locking key within a key-strip unit restores any other operated key within that unit. An additional interlocking mechanism is provided between key-strip units, which restores all operated locking keys when another locking key on the telephone set is operated. Operation of the hold key also restores any operated locking key.

2.09 One locking key in each key-strip unit may be operated simultaneously, and both will lock operated. However, an electrical chaining switch incorporated in each key-strip unit, prevents the electrical connection of more than one line, or other voice channel to the transmission circuit of the telephone. Operation of a locking key in the first key-strip unit (nearest the dial) operates the chaining switch, and opens the circuits to the chaining switch of the second position, etc.

2.10 When connected to a central office, PABX, or similar line, operation of the non-locking hold key disconnects the telephone transmission circuit from that line, and causes the associated relay equipment to place a holding bridge across the line. This frees the Type 860B Telephone Set for use on other lines. The line remains on hold until it is released by any telephone associated with that line. The hold condition may be applied to all lines except tie lines and intercom circuits.

Indicator Lamps

2.11 The condition of the indicator lamps associated with the keys on the Type 860B Telephone Set indicates the status of the representative lines. The conditions of indication are established by the associated key system.

Handset

2.12 The Type 860B Key Telephone Set is equipped with a Type 811 handset of the same color as the telephone set housing. The handset is equipped with a retractile cord, which enters the telephone set through an opening in the front edge of the housing.

Component Arrangement

2.13 The single-gong ringer is mounted on the left front of the telephone set base plate. Its volume adjusting lever protrudes through a slot in the left front edge of the telephone set housing.

2.14 The terminal board (Figure 5) is mounted to the rear of the ringer, and directly beneath the dial mechanism.
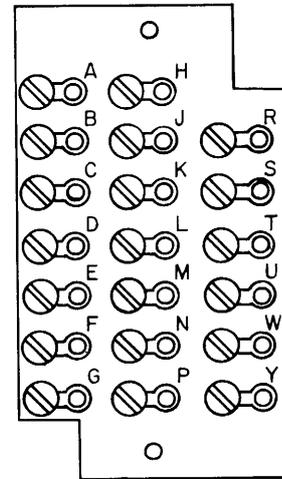

Figure 5. Type 860B Key Telephone Set Terminal Board.

2.15 The transmission unit is of the printed wiring board type. It stands on edge at the rear of the terminal board. See Figure 6. The rotary dial version of the Type 860B Telephone Set uses a WA-1154-A transmission unit (430930). The Touch Calling version uses the WA-1155-A (430931) transmission unit.

Cables and Connections

2.16 The 8-foot mounting cord enters the telephone set at the left side near the rear of the set (Figure 6). It passes under the induction coil of the transmission unit. It is fastened to the telephone set base plate by a clamp near the point of entry into the set. The 120 conductors terminate on 50-terminal plugs of the same type used for connection to the key-strip units. One group of forty conductors terminates on each of three plugs, leaving ten empty terminals on each plug.

3. OPERATION

Placing a Call

3.01 To place a call on a Type 860B Telephone Set:

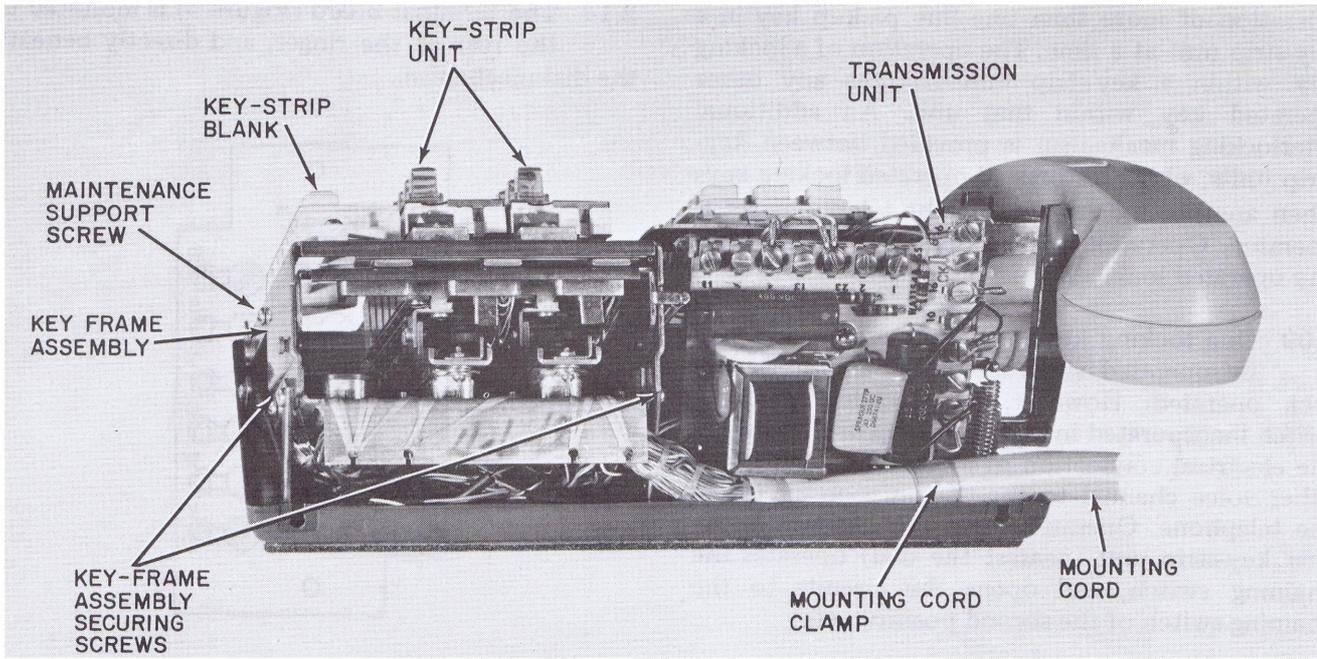(1) Depress a line pickup key which has an unlighted lamp.

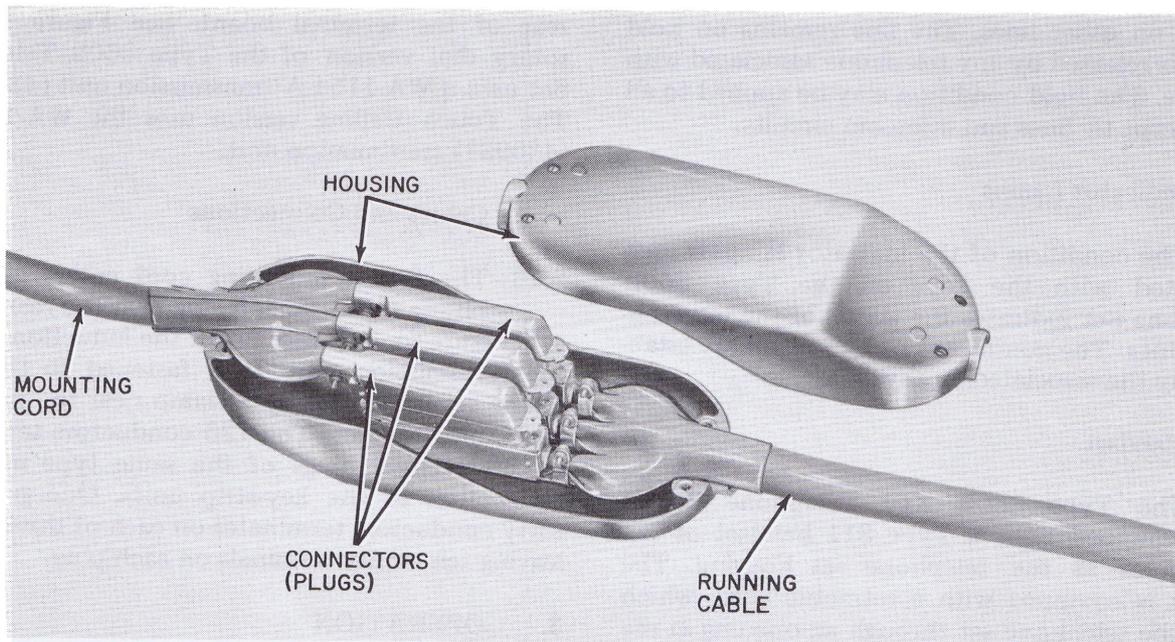Figure 6. Type 860B Key Telephone Set Rear View with Housing Removed.

Figure 7. Type 860B Telephone Mounting Cord Plugs Connected to Running Cable
Receptacles (Cover Off).

(2)   Lift the handset. The lamp associated with the depressed key will light.

(3)   Wait for dial tone, then dial the desired number.

(4)   When the called party answers, begin conversation.

Answering Incoming Calls

3.02   Incoming calls on the Type 860B Telephone Set are announced by the ringer or buzzer as appropriate. A flashing lamp beside one of the pickup keys indicates the line the call is on. To answer the call:

(1)   Depress the pickup key associated with the flashing lamp.

(2)   Pick up the handset and begin conversation. The lamp in Step 1 will stop flashing and present steady illumination.

Using the Hold Function

3.03   To place a line on hold:

(1)   Pick up the line as instructed in Paragrph 3.02.

(2)   Depress the HOLD key momentarily. The operated pickup key will release, and its lamp will remain illuminated.

3.04   To take a line off of hold, depress the associated pickup key. The associated lamp will stop winking and maintain steady illumination.

Terminating a Call

3.05   To terminate a call on a Type 860B Telephone Set, return the handset to its cradle. The lamp associated with the depressed pickup key extinguishes, and the key system releases the line. The depressed key on the telephone set remains locked in the depressed condition.

NOTE: If a call comes in on a line with the representative key depressed, the associated lamp flashes rapidly. To answer, lift the handset and begin conversation.

4.   INSTALLATION

Installation with 10A1, 10A2, 16A, or Equivalent Key System

4.01   The Type 860B Key Telephone Set is supplied with the mounting cord attached. Therefore, there is no necessity to remove the telephone set housing to perform a normal installation. The Type 860B Telephone Set is factory wired for use with A.E.Co. Type 10A1, 10A2, 16A, or equivalent key systems. To install the 860B telephone set with any of these systems:

(1)   Place the telephone set in the location in which it will be used.

(2)   Mount one side of a (553050) connector housing on a wall or the floor within reach of the 8-foot long mounting cord (Figure 7).

(3)   Connect the plugs of the running cable into the receptacle of the mounting cord, and place the connectors inside the mounted half of the connector housing of Step 2.

(4)   Install the second half of the connector housing.

(5)   Connect the opposite end of the running cable to the key equipment. Refer to Figure 8, and the appropriate section in the 484 Division of General System Practices for connection information.

(6)   Install key designation strips on the telephone set as instructed in Paragraph 4.03.

(7)   Stamp the telephone number card as instructed in Paragraph 4.04, or 4.05, as appropriate.
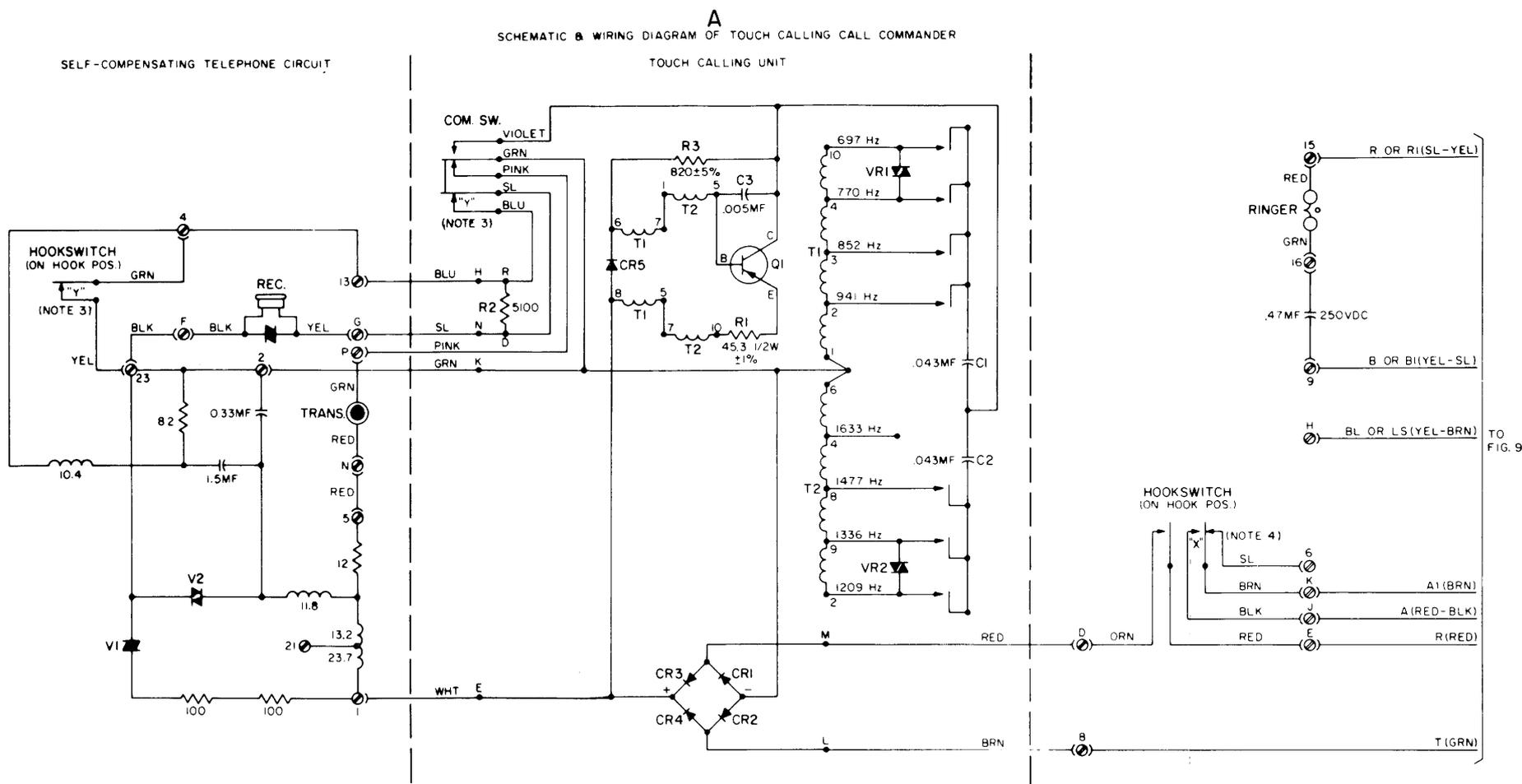
Installation with Type 10A, or Equivalent Key System

4.02   The Type 860B Key Telephone Set requires certain wiring changes to adapt it to use with systems using A.E.Co. Type 10A, or equivalent, key equipment. To install the 860B set with Type 10A Key Equipment:

Table 1. Wiring Terminations for Use with Type 10A Key Telephone System.

(A)	(B)	(C)	(D)	(E)	(F)
Lead Color Code and Designation (if any)	Fixed End Permanently on Terminal (mounting cord plug)	Movable End Originally on Terminal	Movable End Moves to Terminal Indicated for Specific Conversion Desired		
		(All 10A1, 10A2)	All 10A	10A1 or 10A2 on KSU-1; 10A on KSU-2 (and 3, if used)	10A1 or 10A2 on KSU-1 and on KSU-2; 10A on KSU-3
R1 (S1-Yel)	Pin 50	Unused	R1 of IV	1 of I	1 of II
R2 (S1-Blk)	Pin 49	Unused	R of I	R of II	R of III
H1 (Blk-Wh)	Pin 48	H1 of I	A1 of I	H1 of I	H1 of I
H1 (S1-Wh)	H1 of I	Unused	Unused	Unused	H2 of II
Blk-B1	Pin 25	A1 of I	H1 of I	A1 of I	A1 of I
B1-Wh	Pin 21	H1 of I	A1 of I	H1 of I	A1 of I
R (Red)	Terminal Board Terminal E	R of I	R1 of IV	R of I	R of I
R (Red-Wh)	1 of I Strapped to R of II		Retain	Remove	Retain
R (Red-Blk)	1 of II Strapped to R of III		Retain	Retain	Remove
Bl-Wh	Pin 21 of KSU-2	A2 of II	A2 of II	A2 of II	H2 of II
Hookswitch Wire (Blk)	Hookswitch H Terminal	Terminal Board Terminal J	Terminal Board Terminal H		

(1) Remove the housing from the telephone set as instructed in Paragraph 6.02.

(2) Raise the key frame assembly as instructed in Paragraph 6.12.

(3) Remove the dial or Touch Calling unit (as applicable) as instructed in Paragraph 6.04, Steps 2 and 3, and Paragraph 6.05, Steps 2 and 3, respectively.

(4) Referring to Table 1, make the necessary wiring changes. Use column D, E, or F, as appropriate for the key system equipment and connecting arrangement involved.

(5) Re-install the dial or Touch Calling unit, as instructed in Paragraph 6.04, Steps 8 and 9, Paragraph 6.05, Steps 8 and 9, respectively.

(6) Return the key frame assembly to its normal position as instructed in Paragraph 6.13.

(7) Install the housing on the telephone set as instructed in Paragraph 6.02.

(8) Install the converted telephone set as instructed in Paragraph 4.01.

Figure 8. Type 860B Key Telephone Set Transmission and Calling Unit Schematic and Wiring Diagram.

Installing Key Designation Strips

4.03 A sheet of six designation strip blanks for identifying the functions of the keys, is included with each Type 860B Telephone Set. Each strip has six squares, one for each key in a key-strip unit. To install the key designation strip on the telephone set:

(1) Carefully pry and lift the face plate frame assembly off the front panel of the telephone set. The frame is attached to the housing by four spring clips on the frame.

(2) Remove one designation strip from the sheet by tearing along the perforations.

(3) Print or stamp in the proper segment of the designation strip, the line number, extension number, or other identifying letters assigned to each key of the left key-strip unit.

(4) Peel the protective covering from the adhesive backing of the key designation strip.

(5) Place the key designation strip face up on the light shield over the lamps. Press it firmly into place.

(6) Repeat Steps 2 through 5 for the remaining key-strip unit(s).

(7) Put the remaining key designation strips away for use when designations require changing.

(8) Install the face plate frame assembly on the telephone set.

Stamping Telephone Number Card

4.04 On the Type 860B Key Telephone Set equipped with a rotary dial, the telephone number card is enclosed within the dial finger wheel. The finger wheel is of one-piece construction which must be removed from the telephone set to gain access to the telephone number card. For removal of the dial finger wheel and stamping the telephone number card, refer to the appropriate section in the 473-820 series of General System Practices.

4.05 On Touch Calling Type 860B Key Telephone Sets, the telephone number card is enclosed in a rectangular cavity below the Touch Calling pushbuttons on the telephone set face plate. To stamp the telephone number card on this type of set:

(1) Remove the telephone number card cover as follows:

(a) Insert the point of a finger plate removal tool (578922) in the hole in the right end of the plastic telephone number card cover.

(b) Move the handle of the tool to the right just enough to cause the center of the cover to bow outward.

(c) Grasp the center of the cover with the fingers, and bow it further until the right end comes clear of the slot.

(d) Lift the cover out of the slot at the left end and remove.

(2) Stamp the telephone number on the blank telephone number card provided.

(3) Install the stamped telephone number card as follows:

(a) Pass the ends of the card through the slits at the ends of the telephone number card slot.

(b) Align the card so that the printed telephone number is centered in the telephone number card slot.

(4) Re-install the telephone number card cover as follows:

(a) Insert the un-pierced end of the clear plastic cover into the left end of the telephone number card slot.

(b) Bow the cover outward, and insert the pierced end into the

right end of the telephone number card slot.

(c) Release the cover and allow it to snap into place over the telephone number card.

5. OPTIONS

Key Blocking Rings

5.01 Unused keys on the Type 860B Key Telephone Set can be prevented from operating by the addition of blocking rings. Two D-7500080-A blocking rings are supplied with each telephone set. Additional blocking rings can be ordered if needed. To install blocking rings on unused keys:

(1) Remove the telephone set housing as instructed in Paragraph 6.02.

(2) On the key-strip unit containing the unused keys, remove the two receptacle assembly screws (Figure 4) and lift the receptacle assembly off the ladder assembly.

(3) While holding the receptacle assembly upside down, remove the retaining strip and place the blocking rings inside the pushbutton collars of the unused keys.

(4) Re-install the retaining strip on the under side of the receptacle assembly. Press firmly into place.

(5) Place the receptacle assembly over the shafts and fasten with the two receptacle assembly screws.

(6) Attempt to depress the keys on which the blocking rings were installed, to make certain that they are blocked.

(7) Install the housing on the telephone set as instructed in Paragraph 6.03.

Converting Line Pickup Key to Signaling Key

5.02 To convert an unused line pickup key to a non-locking non-interlocked signaling key:

(1) Remove the key-strip unit containing the unused key as instructed in Paragraph 6.06, Steps 1 through 5.

(2) Remove the plunger screw (Figure 4) from the line pickup key being converted to signaling key use.

(3) Re-install the key-strip unit as instructed in Paragraph 6.06, Steps 6 through 10.

(4) Test the converted key to make certain that it does not lock, or release any locked-operated line pickup key, when depressed.

(5) Raise the key frame assembly as instructed in Paragraph 6.12.

(6) Perform the necessary wiring changes as follows:

(a) If the converted key is in the left key-strip unit, move the lead on its terminal A1 to terminal SG of terminal strip IV.

(b) If the converted key is in the middle key-strip unit, move the lead on its terminal A2 to Terminal S2 of terminal strip IV.

(c) If the converted key is in the right key-strip unit, move the lead on its A3 terminal to Terminal S3 of terminal strip IV.

(7) Lower the key frame assembly to its normal position as instructed in Paragraph 6.13.

(8) Install the housing on the telephone set as instructed in Paragraph 6.03.

Converting Hold Key to Line Pickup Key

5.03 Individual keys within a key-strip unit cannot be replaced. Therefore, converting from hold key to line pickup key requires replacement of the entire key-strip unit containing the hold key. Certain wiring changes are also required. To perform this conversion:

(1) Remove the key-strip unit with the

hold key as instructed in Paragraph 6.06, Steps 1 through 5.

(2) Install the replacement key-strip unit containing six line pickup keys, as instructed in Paragraph 6.06, Steps 6 through 10.

(3) Raise the key frame assembly as instructed in Paragraph 6.12.

(4) From among the insulated and stored leads of the key-strip unit receptacle, separate the OR-BL and BR-YEL leads. Remove the insulator from the spade tips of these leads, and connect them to terminal C1 of terminal strip IV.

(5) From among the insulated and stored leads of the key-strip unit receptacle, separate the OR-WH and BR-BLK leads. Remove the insulator from the spade tips of these leads, and connect them to terminal C2 of terminal strip IV.

(6) Lower the key frame assembly as instructed in Paragraph 6.13.

(7) Install the housing on the key telephone set as instructed in Paragraph 6.03.

Addition of Signaling Buzzer

5.04 To provide separate signaling from local points, a signaling buzzer (430438) may be added to the Type 860B Key Telephone Set. The buzzer is not electrically compatible with the ringing potential normally supplied by central offices. Therefore, it cannot be used directly to replace the ringer for signaling calls coming from the central office.

5.05 To install a buzzer in the Type 860B Telephone Set:

(1) Remove the housing from the telephone set as instructed in Paragraph 6.02.

(2) Dismount the dial or Touch Calling unit (as applicable) as instructed in Paragraph 6.04, Steps 2 and 3, or

Paragraph 6.05, Steps 2 and 3, respectively.

(3) Using two 6-40 x 3/16 inch long round head steel SEMS machine screws, mount the buzzer on the front of the transmission unit mounting bracket as shown in Figure 10.

(4) Locate the insulated and stored leads from the mounting cord group identified by a red binder. Separate the YEL-SL and SL-YEL leads from this group (See Figure 9). Remove the insulator from their space tips, and connect these leads to the buzzer.

(5) Restore the dial or Touch Calling unit (as applicable) as instructed in Paragraph 6.04, Steps 8 and 9, or Paragraph 6.05, Steps 8 and 9, respectively.

(6) Install the housing on the telephone set as instructed in Paragraph 6.03.

Installing the Third Key-Strip Unit

5.06 To install a 6-key key-strip unit in the third (extreme right) position on the Type 860B Key Telephone Set:

(1) Remove the housing from the telephone set as instructed in Paragraph 6.02

(2) Remove the two mounting screws (Figure 11) securing the key-strip blank. Lift out the key-strip blank.

(3) Remove and discard the plastic dust covers on the receptacle of the new key-strip unit and the third plug of the mounting cord.

(4) Install the key-strip unit as instructed in Paragraph 6.06, Steps 6 through 10.

(5) Install the housing on the telephone set as instructed in Paragraph 6.03.

6. MAINTENANCE

6.01 Limit maintenance performed on the customer's premises to verification and analysis

of trouble, readily made adjustments, and the replacement of easily accessible parts. If the defective set or subassembly cannot be easily and quickly repaired, replace it with a unit in known good condition. Turn in the defective unit to the shop for repair.

Housing Removal and Installation

6.02 To remove the housing from the Type 860B Key Telephone Set:

(1) With the face plates and face mat in place, carefully lift the face plate frame from the front of the telephone set housing.

(2) Loosen the two housing securing screws located at the rear of the telephone set, one near each corner.

(3) Using the right hand, raise the rear bottom edge of the housing approximately one inch above the top edge of the set base plate rear flange.

(4) While holding the rear of the housing snug against the key frame assembly and transmission unit, with the fingers of the left hand gently spring the front edge of the cover enough to disengage the front housing mounting hooks.

(5) Lift the housing from the telephone set.

6.03 To install the housing on the Type 860B Telephone Set:

(1) Place the housing down over the set front and rear.

(2) With the right hand, hold the rear of the housing approximately two inches above its normal position.

(3) With the left hand, spring the front of the housing, and while observing through the key frame assembly and dial openings, engage the front housing mounting hooks in their slots.

(4) Lower the rear of the housing into its

normal position, and tighten the two housing securing screws.

Dial Replacement

6.04 To replace the dial on the dial equipped Type 860B Key Telephone Set:

(1) Remove the telephone set housing as instructed in Paragraph 6.02.

(2) Loosen the three dial plate mounting screws (Figure 12).

(3) Move the dial and mounting plate assembly toward the rear of the set and lift off.

(4) Remove the plastic dust cover from the dial, and disconnect all the dial leads. Note the connections.

(5) Remove the three dial mounting screws and lift the dial assembly free of the dial mounting plate.

(6) Place the new dial assembly in the dial mounting plate, and re-install the dial mounting screws.

(7) Connect the leads to the new dial as shown in Figure 8.

(8) Place the dial and mounting plate assembly over the three dial mounting plate screws.

(9) Tighten the three dial mounting plate screws.

(10) Install the telephone set housing as instructed in Paragraph 6.03.

Touch Calling Unit Replacement

6.05 To replace the Touch Calling unit on a Touch Calling Type 860B Telephone Set:

(1) Remove the telephone set housing as instructed in Paragraph 6.02.

(2) Loosen the three Touch Calling unit mounting plate screws (Figure 11).

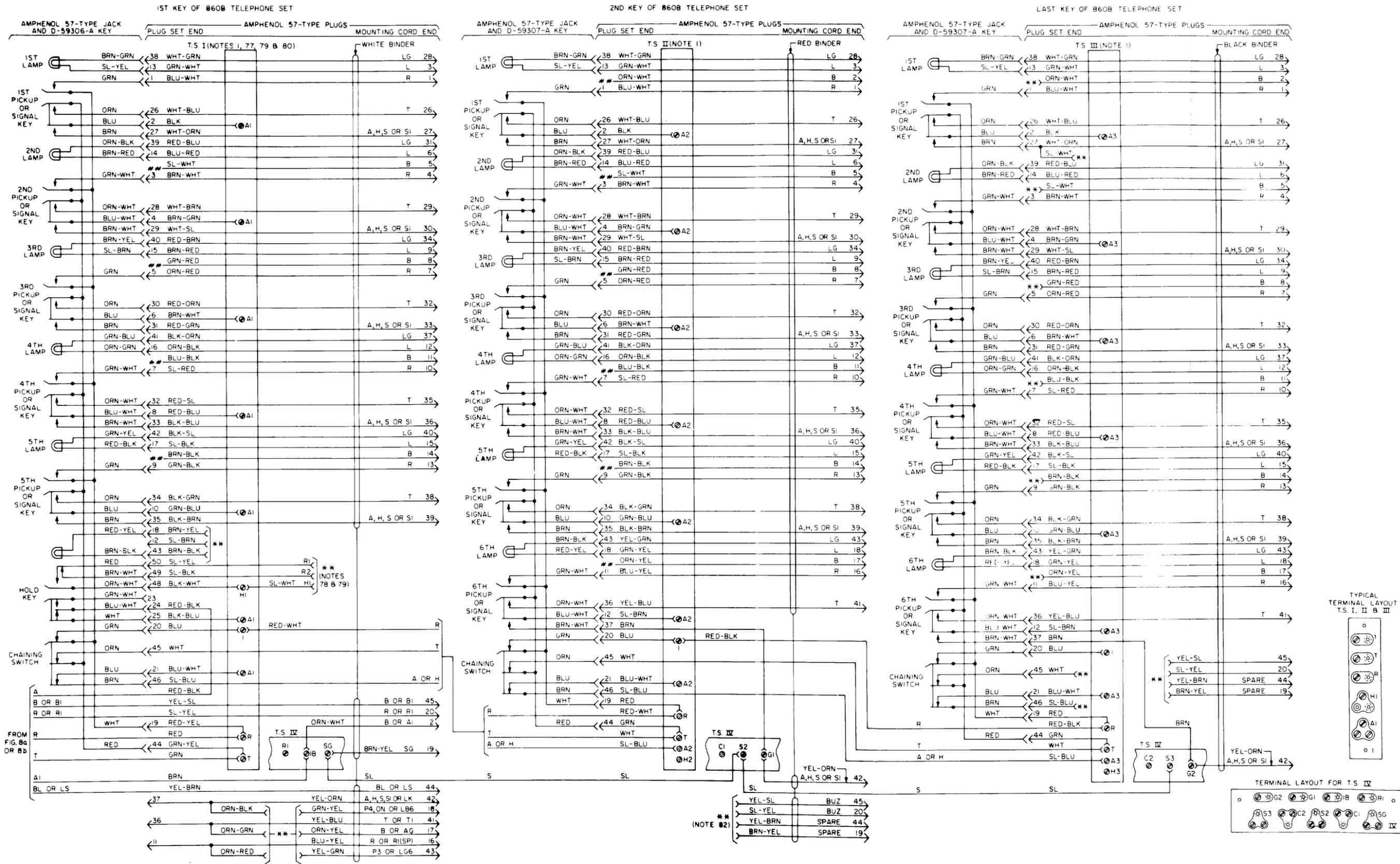(3) Move the Touch Calling unit and

Figure 9.   Type 860B Key Telephone Key Set
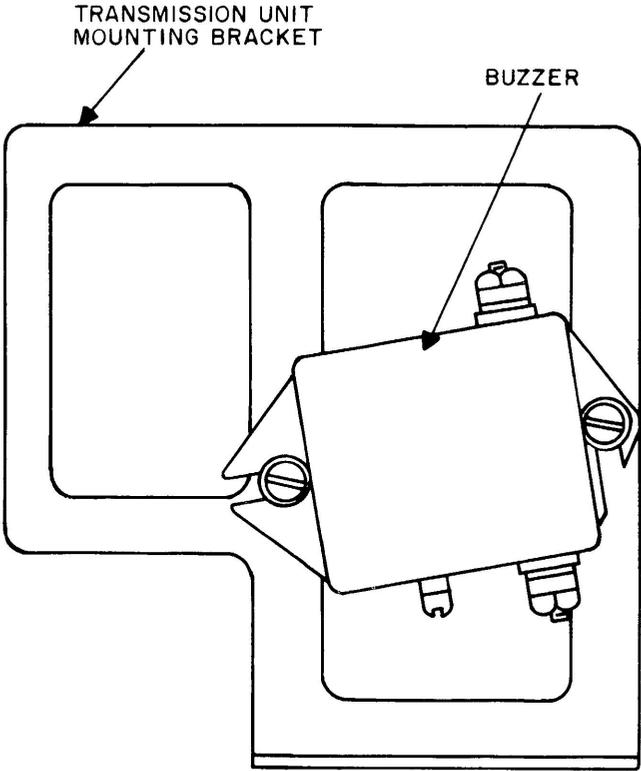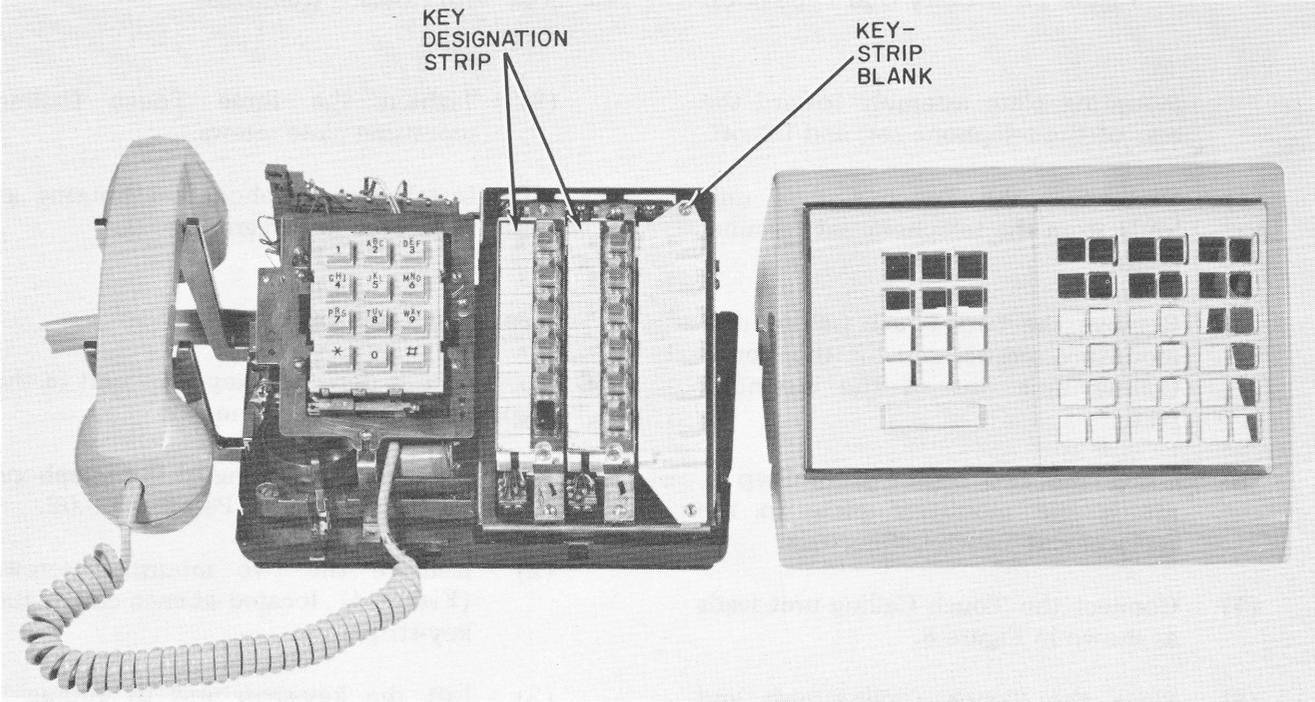Schematic and Wiring Diagram.

Figure 10. Signaling Buzzer Mounting.

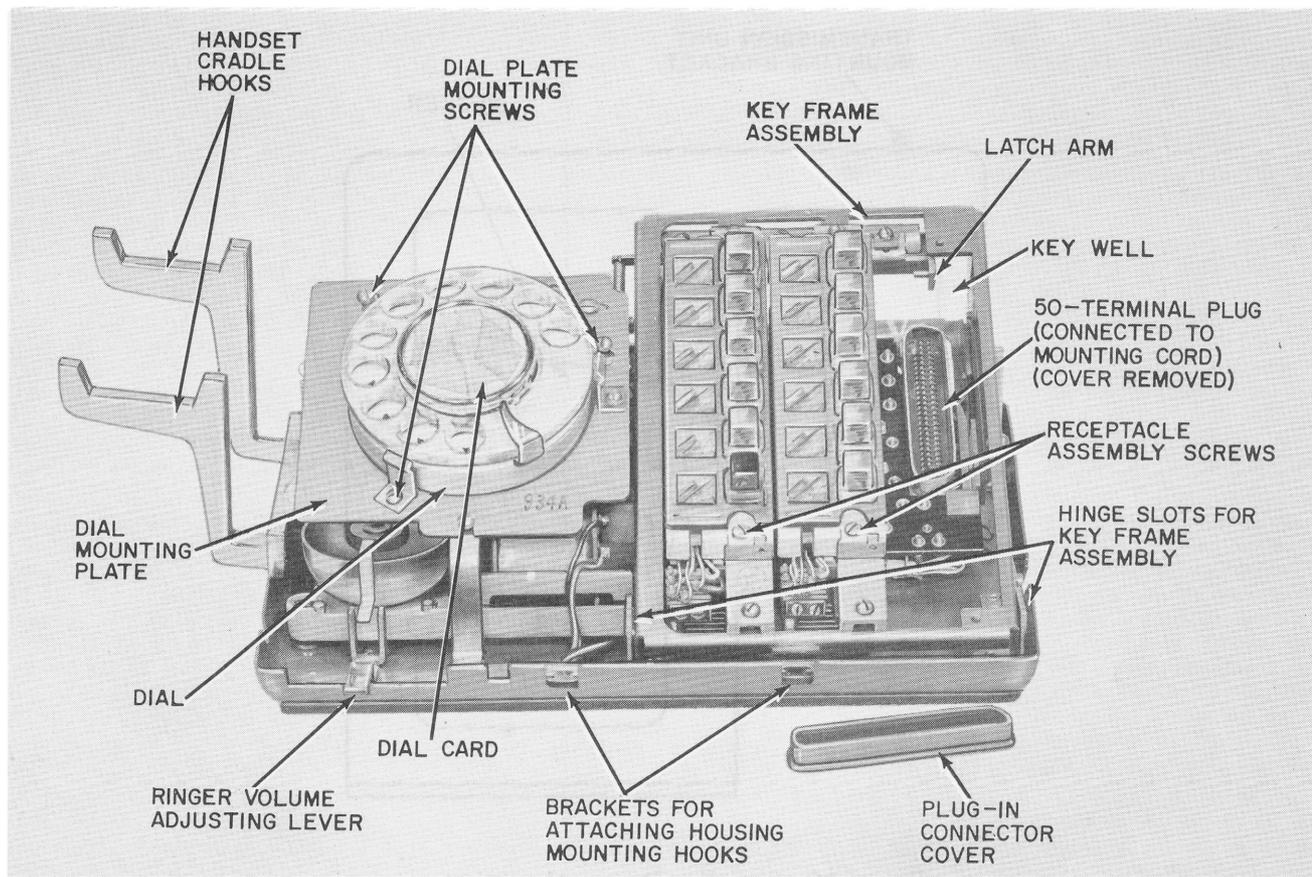Figure 11. Touch Calling Type 860B Key Telephone with Housing Removed.

Figure 12. Rotary Dial Type 860B Key Telephone with Housing Removed.

mounting plate assembly toward the rear of the telephone set, and lift off.

(4) Disconnect the Touch Calling unit leads from the telephone set terminal board.

(5) Remove the two Touch Calling unit mounting screws, and lift the Touch Calling unit out of the mounting plate.

(6) Using the two screws from Step 5, attach the mounting plate to the replacement Touch Calling unit.

(7) Connect the Touch Calling unit leads as shown in Figure 8.

(8) Place the Touch Calling unit and mounting plate assembly over the three Touch Calling unit mounting plate screws.

(9) Tighten the three Touch Calling mounting plate screws.

(10) Install the telephone set housing as instructed in Paragraph 6.03.

Replacing Key-Strip Units

6.06 To replace a defective key-strip unit in the Type 860B Key Telephone Set:

(1) Remove the housing of the telephone set as instructed in Paragraph 6.02.

(2) Remove the two mounting screws (Figure 4) located at each end of the key-strip unit.

(3) Lift the key-strip unit to unplug it from the mounting cord plug.

(4) Move the key-strip unit toward the

rear of the telephone set until the front end clears the key frame.

(5) Lift the key-strip unit out of the key frame assembly, front end first.

(6) Lower the replacement key-strip unit, rear end first, into the opening in the key frame assembly vacated by the defective key-strip unit in Step 5.

(7) Slide the key-strip unit to the rear of the telephone set until its forward end clears the key frame.

(8) Engage the latch arm and the receptacle on the key frame assembly, with the latch bar and plug, respectively, at the rear of the key-strip unit.

(9) Press the key-strip unit firmly into place, and re-install the mounting screws from Step 2.

(10) Check operation of the replacement key-strip unit to see that all keys function properly.

(11) Install the housing on the telephone set as instructed in Paragraph 6.03.

Lamp Replacement

6.07 To replace any lamp in the key frame assembly of a Type 860B Key Telephone Set:

(1) Carefully lift the face plate assembly from the telephone set housing to disengage the face plate frame mounting clips, and remove it from the telephone set.

(2) Remove the light shield from the key-strip unit in which the lamp is to be replaced.

(3) With a thin-bladed screwdriver, turn the lamp until the flat portion of the wedge-shaped lamp base is facing up.

(4) Press down on the flat portion of the lamp base until the opposite end of the lamp pops up.

(5) Gently pry the lamp up to remove it from the clip.

(6) Insert a new (437402) lamp in the clip. Press firmly into place.

NOTE: Press on the glass part of the lamp only to avoid breaking it.

(7) Re-install the light shield on the key-strip unit.

(8) Re-install the face plate assembly.

Ringer Replacement

6.08 To replace the ringer in the Type 860B Key Telephone Set:

(1) Remove the telephone set housing as instructed in Paragraph 6.02.

(2) Remove the dial or Touch Calling Unit (as applicable) as instructed in Paragraphs 6.10 and 6.11, respectively. Do not disconnect the dial or Touch Calling unit leads.

(3) Disconnect the ringer leads from the transmission unit terminals.

(4) Unscrew the three ringer mounting screws, and lift the ringer free of the telephone set base plate.

(5) Place the replacement ringer in position and fasten it to the telephone base plate, using the ringer mounting screws provided.

(6) Connect the ringer leads as shown in Figure 8.

(7) Re-install the dial or Touch Calling unit. Refer to Paragraph 6.10 or 6.11, as appropriate, for instructions.

(8) Install the housing on the telephone set as instructed in Paragraph 6.03.

Transmission Unit Replacement

6.09 To replace the transmission unit in the Type 860B Key Telephone Set:

(1)   Remove the telephone set housing as instructed in Paragraph 6.02.

(2)   Disconnect all leads to the transmission unit terminals.

(3)   Unscrew the two transmission unit mounting screws (Figure 6), and lift the transmission unit free of the telephone set.

(4)   Place the new transmission unit into position against the transmission unit mounting bracket and reinstall the two transmission unit mounting screws.

(5)   Connect the leads to the transmission unit as shown in Figure 8.

(6)   Install the housing on the telephone set as instructed in Paragraph 6.03.

Key Pushbuttons and Plungers

6.10   If any of the key pushbuttons or plungers bind, remove all accumulated dirt or other foreign matter, and wipe the surfaces clean with a damp cloth. If the mechanism persists in binding or squeaking, replace the entire key-strip unit. Do not use lubricants or solvents on the key-strip unit components.

Key-Strip Unit Latching Mechanism

6.11.   The key-strip unit latching mechanism should operate freely. If operation is unsatisfactory, replace the key-strip unit with one in good working condition. Do not lubricate the latching mechanism components.

Raising and Lowering the Key Frame Assembly

6.12   To raise the key frame assembly of the Type 860B Key Telephone Set:

(1)   Remove the two transmission unit mounting screws, and swing the transmission unit upward to clear the mounting cord.

(2)   Remove the mounting cord clamp screw, and lift the mounting cord out of the telephone set base.

(3)   Remove the two key frame assembly securing screws (Figure 6).

(4)   Lift the rear of the key frame assembly. Be careful not to break any short leads.

(5)   Using the screw located in right side flange of the key frame (Figure 6), attach the maintenance support.

6.13   To return the key frame assembly to normal from the raised position:

(1)   Detach the maintenance support from the key frame flange. Return the maintenance support screw to the hole in the key frame flange, and run it down tight.

(2)   Carefully lower the key frame assembly into its normal position. Be careful that no wires become entangled on the transmission unit mounting bracket.

(3)   Install the two key frame assembly securing screws (Figure 6).

(4)   Place the mounting cord into position in the telephone set base plate. Install the mounting cord clamp screw.

(5)   Place the transmission unit into position on the transmission unit mounting bracket, and install the two transmission unit mounting screws.

Key Frame Assembly Removal and Installation

6.14   To remove the key frame assembly from a Type 860B Key Telephone Set:

(1)   Remove the housing from the telephone set as instructed in Paragraph 6.02.

(2)   Remove the left and right key frame securing screws (Figure 6).

(3)   Remove the two transmission unit mounting screws, and swing the transmission unit clear of the mounting cord.

(4)   Raise the rear of the key frame assembly. Lift its front end out of the hinge slots, and remove it from the telephone set.

6.15   To install the key frame assembly in the Type 860B Key Telephone Set:

(1)   Insert the front end of the key frame assembly in the hinge slots.

(2)   Lower the rear of the key frame assembly into position, and install the left and right key frame securing screws (Figure 6).

(3)   Return the mounting cord to its proper position, and fasten the mounting cord clamp to the telephone set base plate.

(4)   Lower the transmission unit to its proper position, and install the transmission unit mounting screws.

(5)   Install the housing on the telephone set as instructed in Paragraph 6.03.

Mounting Cord Frame Removal and Installation

6.16   To remove the mounting cord frame from the Type 860B Key Telephone Set:

(1)   Remove the key telephone set housing as instructed in Paragraph 6.02.

(2)   Remove the dial or Touch Calling unit as instructed in Paragraph 6.04, Steps 1 through 3, or Paragraph 6.05, Steps 1 through 3, as appropriate.

(3)   Raise the key frame assembly as instructed in Paragraph 6.12.

(4)   Disconnect any mounting cord leads which connect at points other than on a 50-terminal plug.

(5)   Remove the four screws securing the mounting cord frame to the key frame assembly.

(6)   Lift the mounting cord free of the telephone set.

6.17   To install the mounting cord frame in the Type 860B Key Telephone Set:

(1)   Plug the mounting cord plugs into the receptacles on the key strip unit.

(2)   Fasten the mounting cord frame to the key frame assembly with four screws. See Paragraph 6.16, Step 5.

(3)   Make any connections necessary according to Figure 8, which do not terminate on any of the 50-terminal plugs.

(4)   Lower the key frame assembly to its normal position as instructed in Paragraph 6.13.

(5)   Install the dial or Touch Calling unit (as applicable) according to Paragraph 6.04, Steps 8 and 9, or Paragraph 6.05, Steps 8 and 9, as appropriate.

(6)   Install the housing on the telephone set as instructed in Paragraph 6.03.

Contact Spring Adjustments

6.18   Normally open spring contacts must have a minimum separation between adjacent springs of 1/64 inch. Normally closed contact springs must have perceptible follow, with minimum separation between adjacent springs of 1/64 inch.

Handset and Capsules

6.21   The Type 860B Key Telephone Set is equipped with a Type 811 Handset. For capsule and handset cord replacement at the handset end, refer to the appropriate section in the 473-801 Series of General System Practices. To replace the complete handset and cord assembly:

(1)   Remove the telephone set housing as instructed in Paragraph 6.02.

(2)   Remove the dial or Touch Calling unit as instructed in Paragraph 6.04, Steps 1 through 3, or Paragraph 6.05, Steps 1 through 3, as appropriate.

(3)   Disconnect the handset cord leads from the terminal board terminals.

(4) Unhook the handset cord retainer from the hole in the telephone set base plate, and remove the handset and cord assembly from the telephone set.

(5) Hook the cord retainer of the replacement handset cord into the hole in the base plate flange (Step 4).

(6) Connect the handset cord leads to the telephone set terminal board terminals as shown in Figure 8.

(7) Install the dial or Touch Calling unit as instructed in Paragraph 6.04, Steps 8 and 9, or Paragraph 6.05, Steps 8 and 9, as appropriate.

(8) Install the housing on the telephone set as instructed in Paragraph 6.02.

Radio Frequency Interference Correction

6.22 Telephones located near a radio transmitter may be subject to radio frequency interference. The RFI may occur within any of the telephone components, or in a line connection external to the set. To determine whether RFI is external or internal, refer to the 471-150 Series of General System Practices and perform the test procedures contained therein. If the RFI is determined as external, perform corrective measures contained therein under the part entitled "RFI Corrective Measures—External." If the RFI is determined as internal, perform corrective measures contained therein under the part entitled "RFI Corrective Measures—Internal," and connect three .03F, 500VDC capacitors in the telephone set for suppression as follows:

(1) One capacitor between terminals 3 and 4 of the self-compensating transmission unit.

(2) One capacitor between terminals 3 and 5 of the self-compensating transmission unit.

(3) One capacitor between terminals 1 and 5 of the self-compensating transmission unit.

Cover the capacitor leads with insulating sleeving.