

# ADVANCE PRINTING

## SERVICE

### 2563HB TELEPHONE SET

#### 1. GENERAL

**1.01** This section provides maintenance and connection information for the 2563HB telephone set equipped with headset jacks and 12-button TOUCH-TONE® dial for use with optional 12-button headset.

**1.02** This section is reissued to:

- Include KS-20419L1 buzzer, Fig. 1
- Show T1A ringer as replacement for N1A ringer, Fig. 1
- Show 35Y3A dial as replacement for 35A3A dial.

#### 2. MAINTENANCE

##### Replaceable Components

**2.01** Field replaceable items are listed under identification in the appropriate Reference section in Division 502.

**2.02** Maintenance of handsets and ringers is outlined in sections covering these components.

##### Loose Card Retainers

**2.03** The P-25E803 and P-269561 are nonadjustable card retainers. The P-25E785 (MD) card retainer is replaced by P-25E803.

**2.04** If P-25E785 (MD) card retainer becomes so loose on the faceplate that the number card or designation strip slips, they can be tightened as follows:

- (1) Remove faceplate from set.
- (2) Remove card retainer from faceplate.
- (3) Bend the four arms of the retainer so that more pressure will be applied to the number card and designation strip. The bends should

be made approximately 1/2-inch in from the tabs on the ends of the arms and in the opposite direction from the factory bent tabs.

(4) Install the card retainer on the faceplate and insert the number card and designation strip.

(5) Install faceplate on telephone set.

**Note:** If adjusting the arms of the retainer does not result in sufficient holding power, replace the card retainer.

##### Removing and Replacing Housing

**2.05** Sets without exclusion:

- (a) To remove housing, loosen captive screws in base of set. Lift housing up and toward front of set.
- (b) To replace housing, guide lower front of housing over pushbuttons, align housing with base of set, and gently press housing into place. Tighten captive screws in base of set.

**2.06** Sets with exclusion:

- (a) To remove housing, pull up exclusion plunger to its operated position, loosen captive screws in base of set, and lift housing up and toward the front of set.
- (b) To replace housing, guide lower front portion of housing over pushbuttons, align housing with base of set, and gently press housing in place.
- (c) Depress exclusion plunger. With slight pressure it should snap into its unoperated position.
- (d) Operate exclusion plunger several times to insure proper operation. Tighten captive screws in base of set.

### Exclusion Switch

**2.07** Perform no field maintenance on exclusion switch and plunger other than cleaning contacts with a 265C tool.

**2.08** Replace set or exclusion switch assembly if any of the following exclusion switch requirements cannot be met:

- (a) Exclusion plunger should remain in the operated position when pulled up to the full extent of its stroke.
- (b) The plunger should return to the fully depressed position when handset is replaced.
- (c) With housing removed, normally closed contacts of the exclusion switch should have perceptible follow when operated manually.
- (d) With housing removed, open contacts of the exclusion switch should have minimum separation of 1/64-inch; gauge by eye.

### Mounting Cords

**2.09** Cords, designed for use with 636A key assemblies, feature slotted wafer sections for each line appearance. This allows easy rearrangement of lines to pickup buttons.



**No field maintenance should be performed on the plug of plug-ended mounting cords.**

### Lamps and Pushbuttons

**2.10** Replace cracked pushbuttons or collars. Remove accumulated dirt or film from lamps, collars, and pushbuttons with a water dampened cloth. **DO NOT USE SOLVENTS OF ANY KIND.** If cleaning does not correct binding of pushbuttons, replace button and collar assembly.

**2.11** To replace defective lamp:

- (1) Lift lamp from socket with KS-6320 orange stick
- (2) Align lamp contact surfaces when placing new lamp in socket

**2.12** The button and collar assembly should be carefully aligned to avoid interference with removal or replacement of housing.

### Keys—636-Type

**2.13** Field maintenance of these keys consist of cleaning contacts with a 265C tool or adjusting with a 363 tool.

**2.14** Contact follow and separation is obtained by using a 363 tool at a point adjacent to contact spring pile-up. When adjusting springs:

- (a) There should be a minimum spring clearance of 1/64-inch between contact springs and those parts of the key which do not make contact with springs.
- (b) Normally open contacts should make with perceptible follow on locking keys before key plunger assumes locked position.

**2.15** Replace set if the following requirements cannot be met:

- (a) When depressed locking plunger should, on its downstroke, release any previously locked plunger.
- (b) When any pushbutton plunger is released from its operated position, it should return with a snap to its nonoperated position.
- (c) An operated key plunger should not release during downstroke of hold button.
- (d) An operated key plunger should release from its operated position on the upstroke of the hold button.

### 241A Amplifier

**2.16** Used in telephone sets with headset jacks to amplify the output of the headset transmitter. **NO FIELD MAINTENANCE SHOULD BE ATTEMPTED ON 241A AMPLIFIER.**

**2.17** Replace a 241A amplifier if it is suspected of being defective (as evidenced by poor or no transmission).



**TOUCH-TONE Dial**

- 2.18** Check line polarity if no tones are heard in the receiver when a button is depressed.



*The 35-type dial will function only when the green dial lead is positive (+) and when the orange-black lead is negative (-).*

- 2.19** A dial hand test set connected to line terminations can be used to test for defective dials.



*Do not attempt repair of TOUCH-TONE dials in the field. Replace defective dials.*

**Handsets**

- 2.20** When special conditions exist the G1AR or G3AR may be replaced by the following:

- G6AR (MD) or G6B handset for impaired hearing
- G7AR handset for weak speech
- G8A or G8B handset for noisy locations

**3. CONNECTIONS**

- 3.01** These sets are factory-wired for use with 1A1 or 1A2 key telephone system line circuits;

they can be modified for use with 1A key telephone systems as shown in Fig. 3. The sets are equipped with a 241-type amplifier providing headset operation. A 52- or 53-type headset must be ordered separately.

- 3.02** The optional kits of parts providing polarity guard for end-to-end signaling service and station busy lamp features are not adaptable to the present design of 2563HB telephone set. Station busy lamp indication, showing only that the handset is off-hook or that the headset key is in the ON position, can be provided for 1A1 or 1A2 KTS by use of a KS-15724L1 diode which must be ordered separately and connected as shown in Fig. 2. This connection **will not** indicate that a line pickup pushbutton is depressed. Station busy for 1A KTS is a wiring option shown in Fig. 3.

- 3.03** The *I hold* feature of SD-69530-01 can be incorporated with these sets when used with 1A1 or 1A2 KTS. Telephone set wiring changes are shown in Fig. 2 and key system component requirements are shown in SD-69530-01.

- 3.04** Line exclusion feature can be provided by installation of a D-179935 Kit of Parts (ordered separately). Connect as shown in Table A.

- 3.05** The set ringer may be connected as a bridged ringer on any line if desired (Note 4, Fig. 1)

- 3.06** ♦The 2563HB telephone set is factory-equipped with a KS-20419L1 (10 volt AC only) buzzer.♦

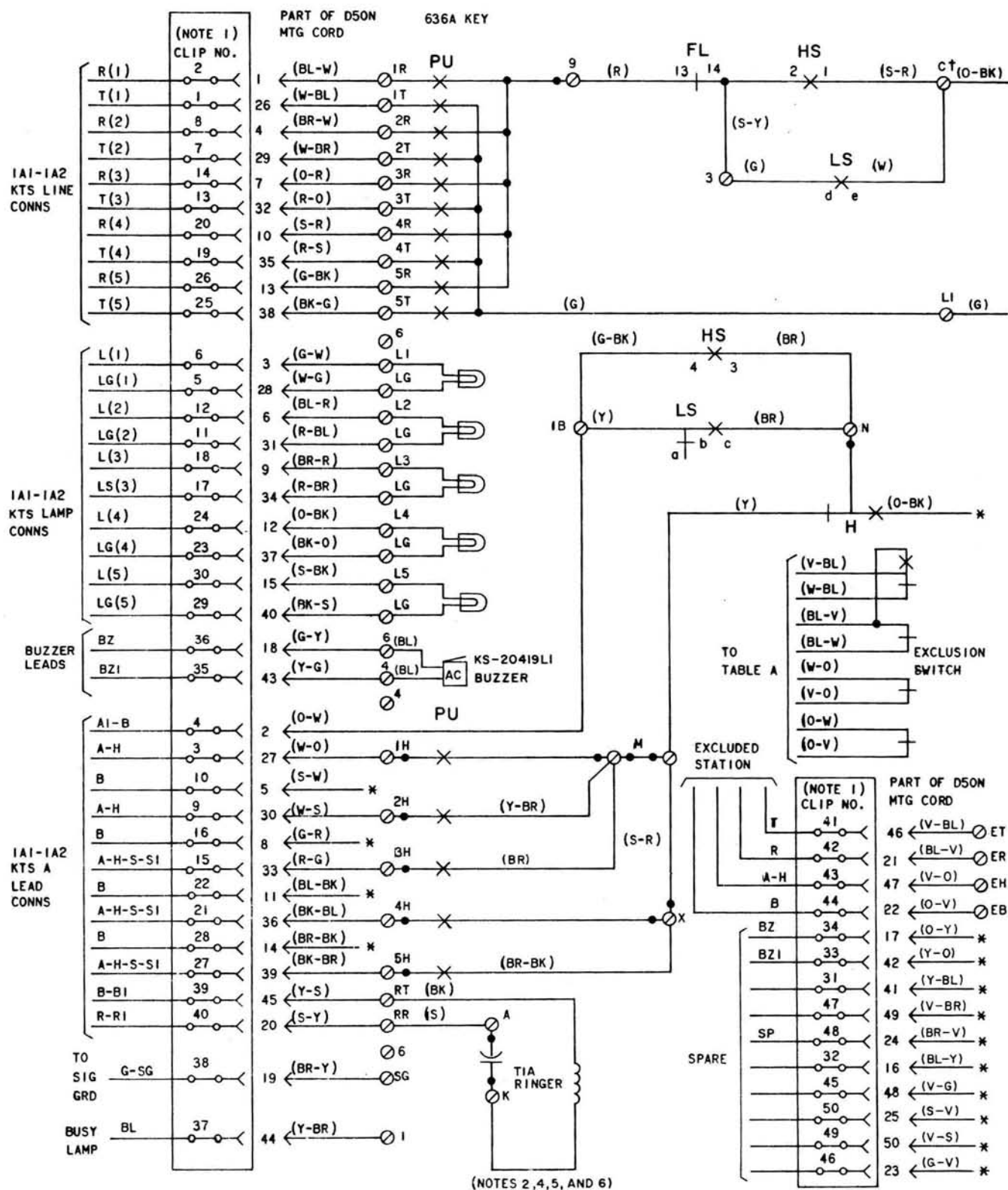
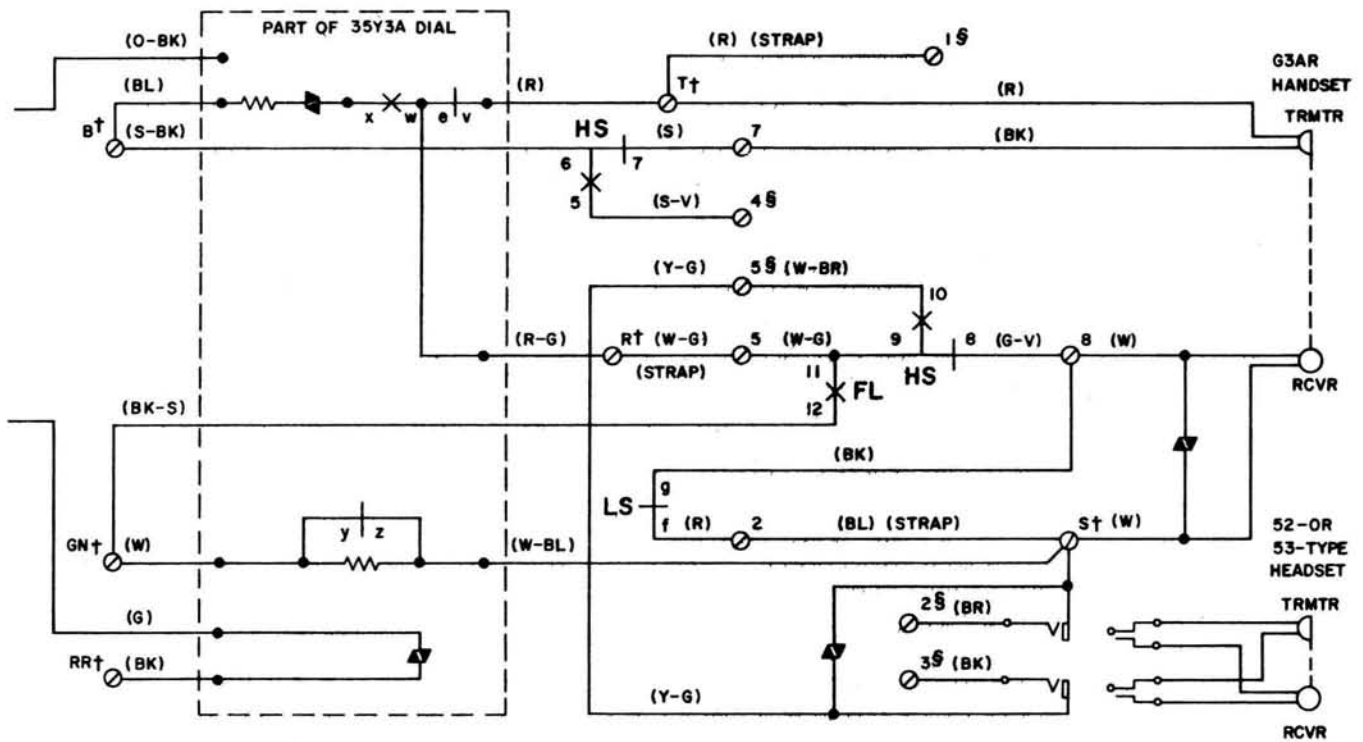


Fig. 1—2563HB Telephone Set, Connections (Sheet 1 of 2)



## NOTES:

1. 66E-TYPE CONNECTING BLOCK SHOWN. MOUNTING CORD MAY BE PLUGGED DIRECTLY INTO CONNECTOR CABLE. CORD AND PIN NUMBERS FOR CONNECTOR CABLE ARE SAME AS MOUNTING CORD.
2. CONNECTIONS FOR TIA RINGER SHOWN. CONNECTIONS FOR NIA RINGER IDENTICAL EXCEPT INSULATE AND STORE (S) AND (S-R) LEADS.
3. IF EXCLUSION FEATURE IS ADDED, CONNECT SWITCH LEADS PER TABLE A.
4. FOR BRIDGED RINGER ON ANY LINE CONNECT (R) RINGER LEAD TO K OF NETWORK AND (BK) RINGER LEAD TO TIP OF LINE INVOLVED. CONNECT (S) STRAP FROM A OF NETWORK TO RING OF LINE INVOLVED.
5. IF CAPACITOR IS NOT REQUIRED IN RINGER CIRCUIT, MOVE (R) RINGER LEAD TO A OF THE NETWORK.
6. TO SILENCE RINGER PERMANENTLY CONNECT (R) AND (BK) RINGER LEADS TO K OF THE NETWORK.
7. LINE SWITCH SEQUENCE, HANDSET REMOVED:  
b-c MAKES  
d-e MAKES  
f-g BREAKS
8. 644A KEY SEQUENCE:  
3 AND 4 MAKE FIRST  
1 AND 2 MAKE SECOND
9. SET MUST BE EQUIPPED WITH A 241A SERIES II AMPLIFIER IF EXCLUSION FEATURE IS ADDED.
10. IF HOLD POSITION LAMP IS REQUIRED, USE SPARE LEADS AND SPARE TERMINALS OR D-161488 CONNECTORS.

\* - INSULATED AND STORED

† - NETWORK TERMINAL-UNDESIGNATED TERMINALS ARE ON KEY TERMINAL BOARD.

§ - 241A AMPLIFIER TERMINAL

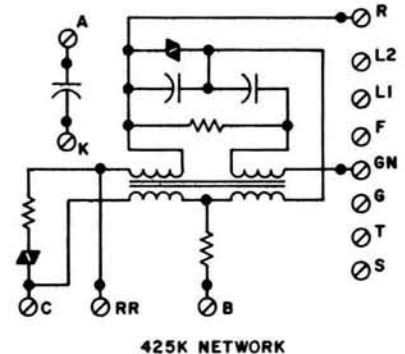
PU- PICKUP KEY

H- HOLD KEY

LS- LINE SWITCH

HS- HEADSET ON-OFF KEY (644A)

FL- FLASH KEY (644A)



425K NETWORK

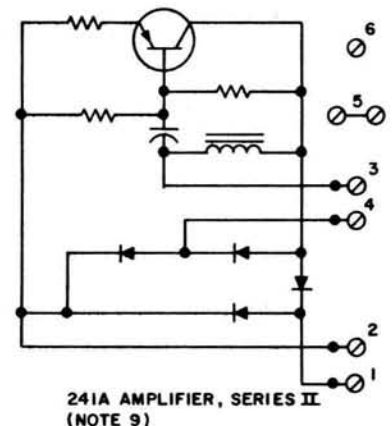
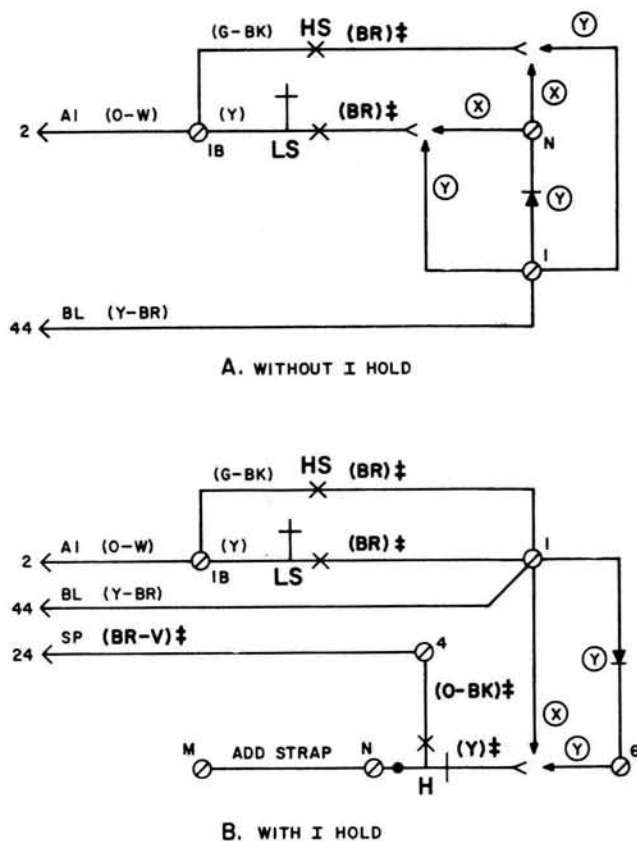
241A AMPLIFIER, SERIES II  
(NOTE 9)

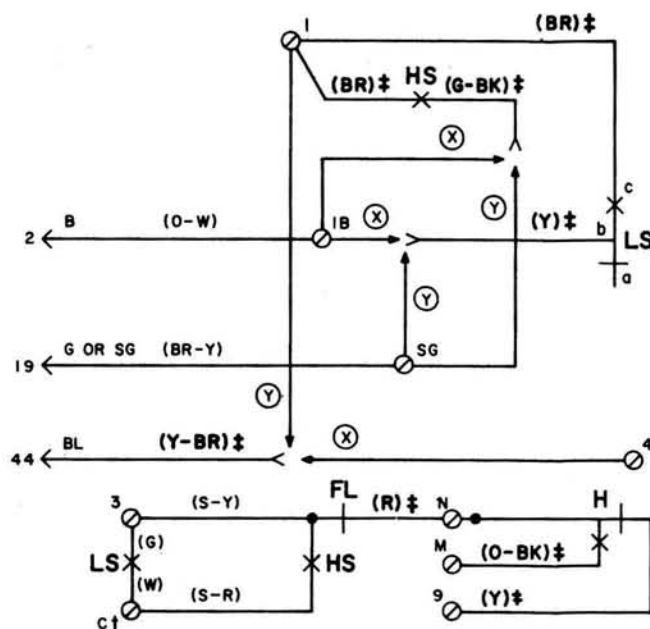
Fig. 1—2563HB Telephone Set, Connections (Sheet 2 of 2)†





H—HOLD KEY  
 HS—HEADSET ON-OFF KEY  
 LS—LINE SWITCH  
 (X)—WITHOUT BUSY LAMP  
 (Y)—WITH BUSY LAMP, USE KS-15724, LI DIODE  
 ‡—LEADS INVOLVED IN MODIFICATION

NOTE:  
 ALL TERMINALS ARE ON KEY TERMINAL BOARD.



H—HOLD KEY  
 FL—FLASH KEY  
 HS—HEADSET ON-OFF KEY  
 LS—LINE SWITCH  
 (X)—WITHOUT BUSY LAMP  
 (Y)—WITH BUSY LAMP  
 †—NETWORK TERMINAL UNDESIGNATED TERMINALS ARE ON KEY TERMINAL BOARD.  
 ‡—LEADS INVOLVED IN MODIFICATION

Fig. 2—2563HB Telephone Set-1A1 or 1A2 Key Telephone System, I Hold and/or Station Busy Lamp Modifications

Fig. 3—2563HB Telephone Set Converted for 1A Key Telephone System, With or Without Station Busy Lamp

**TABLE A**  
**CONNECTIONS FOR LINE EXCLUSION KEY**

EXCLUSION	KEY TEL SYS	EXCLUSION KEY LEADS							
		BL-W	W-BL	O-W	W-O	V-BL	BL-V	V-O	O-V
On any line	1A	R*	T*	1B†	H*	ET	ER	EH	EB
	1A1 or 1A2	R*	T*	EB	H*	ET	ER	EH	EB

\* Connect to terminal of line being excluded.

† When other than Line 1 is excluded in a 1A key telephone system, remove the O-W mounting cord conductor from terminal 1B, insulate and store. Connect balance lead cord conductor of line involved to terminal 1B.

**Note:** To allow access to and operation of the exclusion switch plunger during headset operation, **handset** must be lifted and left off of its cradle. Returning handset to on-hook position cancels exclusion.

**TABLE B**  
**PICKUP-SIGNAL KEY CONVERSION**

CONVERTIBLE KEY OPTIONS	KEY LEADS			
	Y-BR	BR	S-R	BR-BK
HPPPPP	M	M	M	X
HPPPPS	M	M	M	SG
HPPPSS	M	M	SG	X
HPPSSS	M	X	SG	X
HPPP*P*S*	M	X	5H	N†
HPP*P*P*S*	X	X	5H	N†

\* These pickup key options use line switch or headset switch controlled ground through the common signal key and the S lead of the selected line to operate a common signal relay.

† For 1A KTS connect to terminal 1. Obtain common signal ground through (Y) line switch lead or (G-BK) headset key connected to SG terminal.

**Note 1:** All convertible key positions are arranged in the factory as pickup positions. To convert a key position from pickup (locking) to signaling (nonlocking), remove the P-12A892 screw detail from plunger at the key position to be converted. Make necessary connection changes as shown in Table B. To convert a key position from nonlocking to locking, insert P-12A892 screw detail.

**2:** When keys are converted for signaling, the S lead of key involved provides the signal circuit and SG lead provides the common signal ground.