

## 2872A1M OR 2872A2M TELEPHONE SET (TOUCH-A-MATIC® REPERTORY DIALER)

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Handset Cradle Removal . . . . .	14	1.01 This section provides identification, installation, connections, operation, and maintenance	

### NOTICE

Not for use or disclosure outside the  
Bell System except under written agreement

information on the 2872A1M or 2872A2M telephone set (TOUCH-A-MATIC service) (Fig. 1).

**1.02** This section is reissued to:

- Add 2872A2M
- Revise tables, figures, and text.

Since this reissue covers a general revision, arrows generally used to indicate changes have been omitted.

**1.03** The 2872A1M or 2872A2M telephone set is factory wired for use with 1A1, 1A2, or 6A key telephone systems (KTS). They may be converted (Table L) for use with 1A KTS.

**1.04** The telephone sets are available in the following colors:

- Black (-03)

- Green (-51)
- White (-58)
- Lt. Beige (-60)

## 2. IDENTIFICATION

**2.01** The 2872A1M or 2872A2M telephone set provides all standard features of 6-button key telephone sets plus (manual) TOUCH-TONE® dialing, automatic dialing of 31 frequently called numbers, and a LAST NUMBER DIALED *scratch pad* memory.

### 2.02 Design Features:

- Modular key telephone set
- Integrated circuit RC TOUCH-TONE oscillator
- Integrated circuit memory

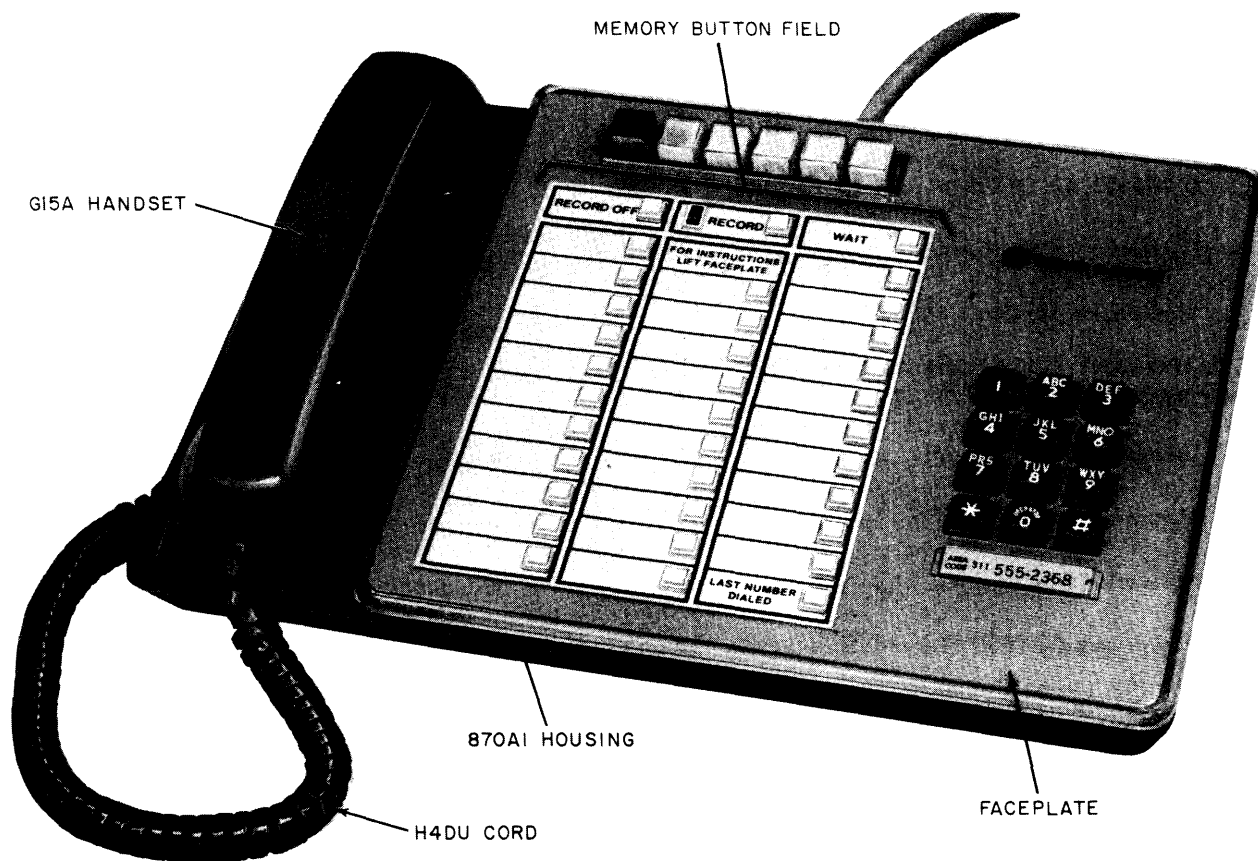


Fig. 1—2872A1M or 2872A2M Telephone Set

- Surge protector
- Polarity guard (Removable for dry circuit application)
- Common audible ringing
- Buzzer
- Busy lamp diode
- Line pickup buttons convertible to nonlocking signal buttons
- Memory buttons from which to select preprogrammed telephone numbers for automatic dialing
- Capability to record and automatically dial 31 telephone numbers of up to 15 digits each
- Last number manually dialed memory
- Plug-in battery
- Capability to pause for second dial tone during automatic dialing (WAIT input)
- End-to-end signaling for data application.

### 2.03 *Optional Features:*

- Speakerphone—either 3B or 4-type speakerphone may be added to stations
- Dial Tone Detector—automatically starts dialer when precise TOUCH-TONE dial tone (350 Hz and 440 Hz) is present.

**Note:** All dial tones encountered in the process of placing a call must be precise TOUCH-TONE dial tone if the call is to be completed automatically.

- One-Touch Calling, (requires both Dial Tone Detector and speakerphone)—depressing one memory button will automatically turn on speakerphone and dial number.
- Station Busy Lamp
- 2/4 Wire Service

- Add-On-Conference
- Exclusion (electrical)
- "T" Hold
- Signaling
- Amplifying Handset.

### 2.04 All options are implemented by:

- Wiring changes in the telephone set
- Installation of appropriate additional items.

### 2.05 *Ordering Guide:*

(a) The 2872A1M or 2872A2M telephone set is a modular type telephone set and may be ordered complete and ready to install as:

- Set, Telephone, 2872A1M-\*
- Set, Telephone, 2872A2M-\*

#### (b) *Ordered Separately:*

- Unit, Power, 95B1 (required for operation of the automatic dialing feature).

(c) The 2872A1M or 2872A2M may also be ordered in their component parts as follows:

- Housing, 870A1-\*
- Faceplate, 2872A1-87
- Handset, G15A-\*
- Cord, Handset, H4DU-\*
- Base, Telephone Set, 2872AM or 2872A2M (includes the following):

Dial, 35AG3A

Key, 635BT5

Collar, P-23F503 or 812365039

Ringer, P1B

Network, 425K or 4228B

TABLE A  
OPTIONS

OPTION		ADDITIONAL ITEMS REQUIRED		CONNECTION PER	
				FIGURE	TABLE
Speakerphone*	4A	108-type Loudspeaker		11	D-G
		680-type Transmitter		11	D-G
		CONNECTOR BLOCK	82A	11	D, E
			82B	11	F, G
		85B1 Power Unit		11	D-G
		D-180492 Kit of Parts		8 (C)	B-G
	3B	760A Loudspeaker		10	B, C
		666B Transmitter		10	B, C
		55-Type Control Unit		10	B, C
		2012B Transformer		10	B, C
		149B Adapter			B, C
		D-180492 Kit of Parts		8 (C)	B-G
One-Touch Calling		D-180493 Kit of Parts		8 (D, E)	C, E,
		Speakerphone		8 (B)	or G
Dial Tone Detector		D-180493 Kit of Parts		8 (D)	C,E,G,H
Station Busy Lamp				9	
“I” Hold				9	
Signaling					J
Exclusion (Electrical)				9	
Add-On-Conference				9	
Amplifying Handset		G6-, G7-, or G8-Type Handset		8(H)	
2/4 Wire Service*		D-180494 Kit of Parts		12	I
Dry Circuit (without Polarity Guard)				8 (B)	
1A Key Service					L

\*2/4 wire option and speakerphone cannot be used simultaneously.

Buzzer, KS-20419L1

Cord, Mounting, D50AM-87

Battery, KS-20390L2 (2872AM or 2872A2M base)

Battery, KS-20390L4 (2872A2M base only)

Jack, Handset, 616B

Memory, 2870A (includes button field)

Power Supply Printed Wiring Board (PSB) Assembly, 840393581 (2872AM base)

Power Supply Printed Wiring Board (PSB) Assembly, 841382658 (2872A2M base)

Directory Sheet Set, 840393672 (2)

Booklet, Instruction, Subscriber, SIB-2455

(d) **Optional Apparatus (order as required):**

- Kit of Parts, D-180492 (must be used for speakerphone service)

- Kit of Parts, D-180493 (Dial Tone Detector and One-Touch Calling switch)

- Kit of Parts, D-180494 (for conversion to 4-wire service)
- Handset, Amplifying (G6-, G7-, or G8-type).

\*Add appropriate color suffix (1.04).

## 2.06 Operating Features (Fig. 2):

- Dial (TOUCH-TONE dial)
- Line key (635BT5), 6-button key. Hold with five line pickup buttons which are convertible to nonlocking. An additional momentary contact (logic reset switch) is attached to the hold side of the key to reset the logic circuit anytime a key button is depressed.
- 32-button array of low force, low travel nonlocking memory buttons arranged in three columns. Left and right columns have eleven buttons, center column has ten buttons.
- LAST NUMBER DIALED button located in lower right corner of memory field, when momentarily depressed, automatically redials the last number manually dialed.
- RECORD button (nonlocking), when momentarily depressed, lights the RECORD lamp and enables the memory circuits to store telephone numbers.
- RECORD OFF button (nonlocking), when momentarily depressed extinguishes the RECORD lamp, indicating that the dialer is switched out of the record mode.
- WAIT button (nonlocking), when momentarily depressed during recording operation, enters a code into memory to initiate a halt in the automatic dialing sequence [used where access digit(s) required].

## 3. INSTALLATION

### STANDARD INSTALLATION

**3.01** Make all wiring changes and telephone set modifications (Table A) before external connections are made to the set (4.01).

**Caution:** Do not plug in either battery or power unit until all connections and

**modifications are completed. Take extreme care not to damage the exposed components, circuit, etc. when the set is opened.**

**3.02** The set is shipped from the factory with the battery disconnected. After all wiring changes and modifications have been completed, connect the battery (Fig. 6) by tilting the set up, and inserting the battery plug into the mating jack.

**Note:** Write date of installation on label provided on battery.

**3.03** Install the 95B1 power unit within 150 feet (24 gauge conductors) of the telephone set and plug into an AC outlet not controlled by a switch (continuous AC power is required) (Fig. 7 ). The power unit may be located at the equipment end of the cable or run directly into the telephone set by conductors separate from the mounting card and connected to PSB terminals 30 and 31. Refer to applicable tables and Fig. 7 for particular type of installation. When separate power conductors are used, disconnect, insulate, and store the (G-W) and (W-G) mounting cord leads from PSB terminals 30 and 31.

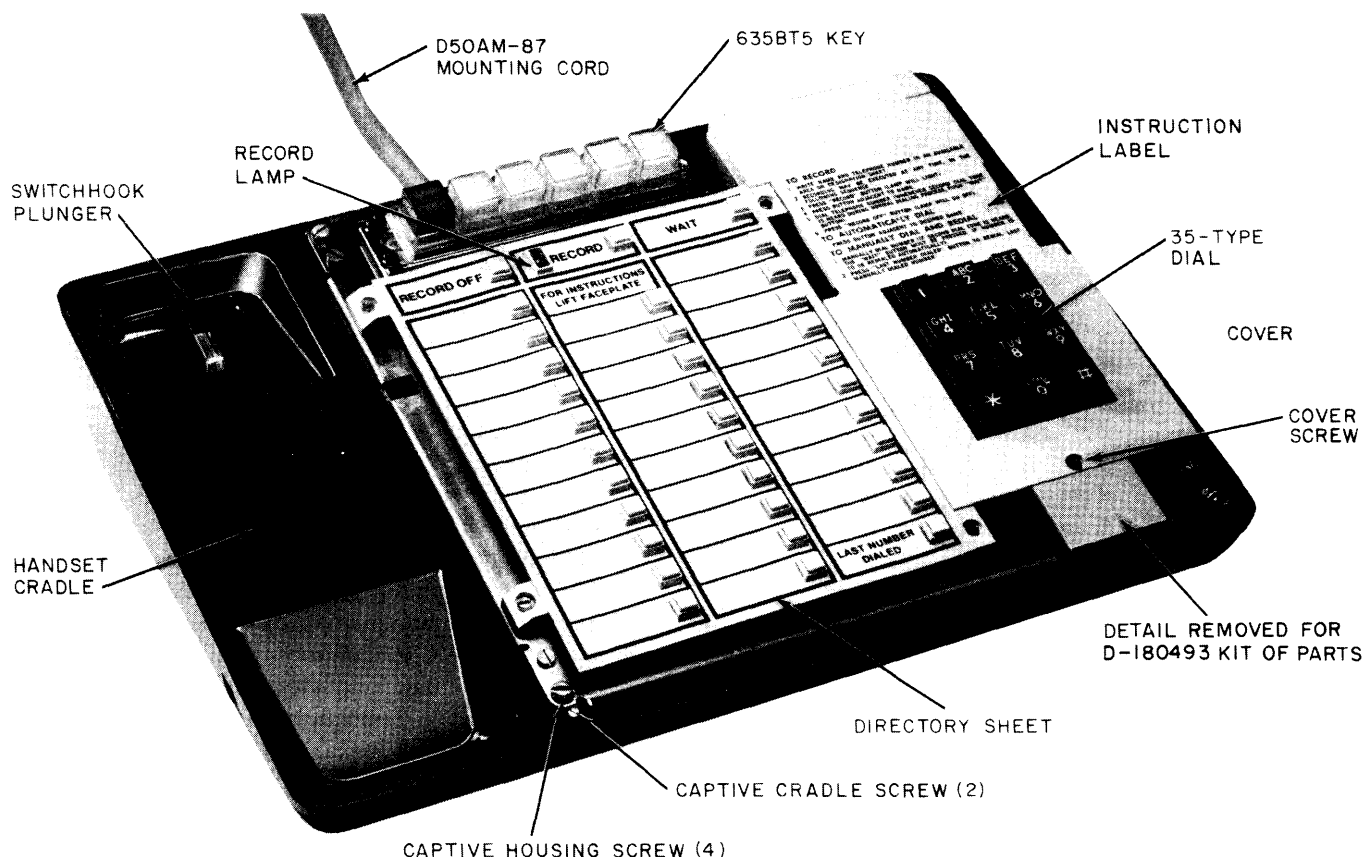
**Note:** The 95B1 power unit must be located no closer than 1-1/2 feet from the telephone set in order to prevent a noise problem.

**3.04** The station number card retainer (P-25E803 or 812558039) snaps into the faceplate below the dial.

**3.05** The directory sheets (Fig. 2) fit over the buttons of the memory and are held in place by the faceplate. Additional sheets are available in the directory sheet set, 840393672.

**3.06** To designate the 635-type 6-button key:

- (1) Use Form 5837 tabs.
- (2) Squeeze the key button caps gently and remove.
- (3) Insert the tabs.
- (4) Replace the caps so that small bumps on side of caps are on sides of buttons.



**Fig. 2—2872A1M or 2872A2M Telephone Set—Faceplate and Handset Removed**

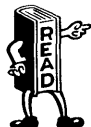
### Installation Check Procedure

**3.07** Check telephone set installation per the following tests (refer to Part 5 for operation). In case of failure, refer to Trouble Analysis, Table M.

- (1) Disconnect 95B1 power unit and manually dial a known telephone number to check that the telephone operates correctly in the absence of commercial power.
- (2) Reconnect 95B1 power unit to AC outlet.
- (3) With handset on-hook, record digits 1 through 0 into all memory locations except LAST NUMBER DIALED and location immediately above it [5.01 (4)-(7)].
- (4) Manually dial CO dial test and ringer circuit and simultaneously record into memory location immediately above LAST NUMBER DIALED button [5.01 (4)-(7)]. After depressing

RECORD OFF button, and when dial test circuit is ready, test dial frequencies by manually dialing digits 1 through 0 into the test circuit.

- (5) Momentarily hang up handset and automatically dial the test circuit number recorded in Step (4) by depressing button immediately above LAST NUMBER DIALED button and proceed as follows:
  - (a) Depress LAST NUMBER DIALED button. Digits 1 through 0 will be automatically dialed into test circuit. Verify that correct signal is returned from test circuit.
  - (b) Depress buttons of memory locations recorded in Step (3) and verify that correct signal is returned from test circuit each time.



***The battery and 95B1 power unit must be connected a minimum of five minutes before doing Step (c).***



- (c) Momentarily disconnect the 95B1 power unit (for 5 to 10 seconds). After reconnecting power unit, depress a memory button of a memory location used in Step (3), to verify retention of memory.
- (6) Dial the appropriate code for ring-back to test the ringer.
- (7) Check operation of the logic reset switch by pressing the RECORD button (RECORD lamp will come on) and subsequently pressing a line button. The RECORD lamp must go out.
- (8) If equipped with one-touch calling option (D-180493 Kit of Parts and speakerphone), and with set in on-hook condition, depress the button previously used to record in Step (4). The set should automatically turn the speakerphone on and dial the number.

#### OPTIONAL APPARATUS INSTALLATION

##### D-180492 Kit of Parts

##### 3.08 To install:

- (1) Proceed as described in 3.15.
- (2) Make connections per Tables B through G.
- (3) Mount the kit assembly to the chassis with the screws provided (Fig. 4). Beveled corner of printed wiring board (PWB) should be located at lower right corner.

##### D-180493 Kit of Parts

##### 3.09 To install:

- (1) Remove the housing (3.19), and access PSB terminal board (3.15).
- (2) Insert the board assembly from the back of the set and locate as shown in Fig. 4, such that the two tabs on the board assembly fit into the slots in the bottom of the chassis.
- (3) Lock the board into position by inserting the accompanying screw from the side of the set.
- (4) Mount the one-touch calling switch below the dial with the two screws provided.

**Note:** If dial tone detector is being used without speakerphone option, make connections for the D-180493 Kit of Parts found in Table H.

- (5) Make connections per Table C, E, G, or H.
- (6) Break off the detail at the bottom of the cover (Fig. 2) and trim edge as required.

##### D-180494 Kit of Parts

##### 3.10 To install:

- (1) Proceed as described in 3.15.
- (2) Make connections per Table I.
- (3) Mount the kit assembly to the chassis with the screws provided (Fig. 4).

#### Single-line Service

**3.11** Previous issues of this section described the conversion of the 2872A1M telephone set to provide single line service. These instructions have been deleted from this issue since a set coded 2870A1M is now available from the factory to provide single line service.

#### COMPONENT LOCATION AND ACCESS INFORMATION

##### Location of Components

**3.12** The components are located in three areas as follows:

- (a) Under the handset cradle (Fig. 3):
  - Buzzer
  - Ringer
  - Switchhook assembly
  - Handset jack
  - Terminal boards (TB1 and TB2).
- (b) Under the faceplate, inside the set (Fig. 4 and 5):
  - Battery jack (Fig. 5)

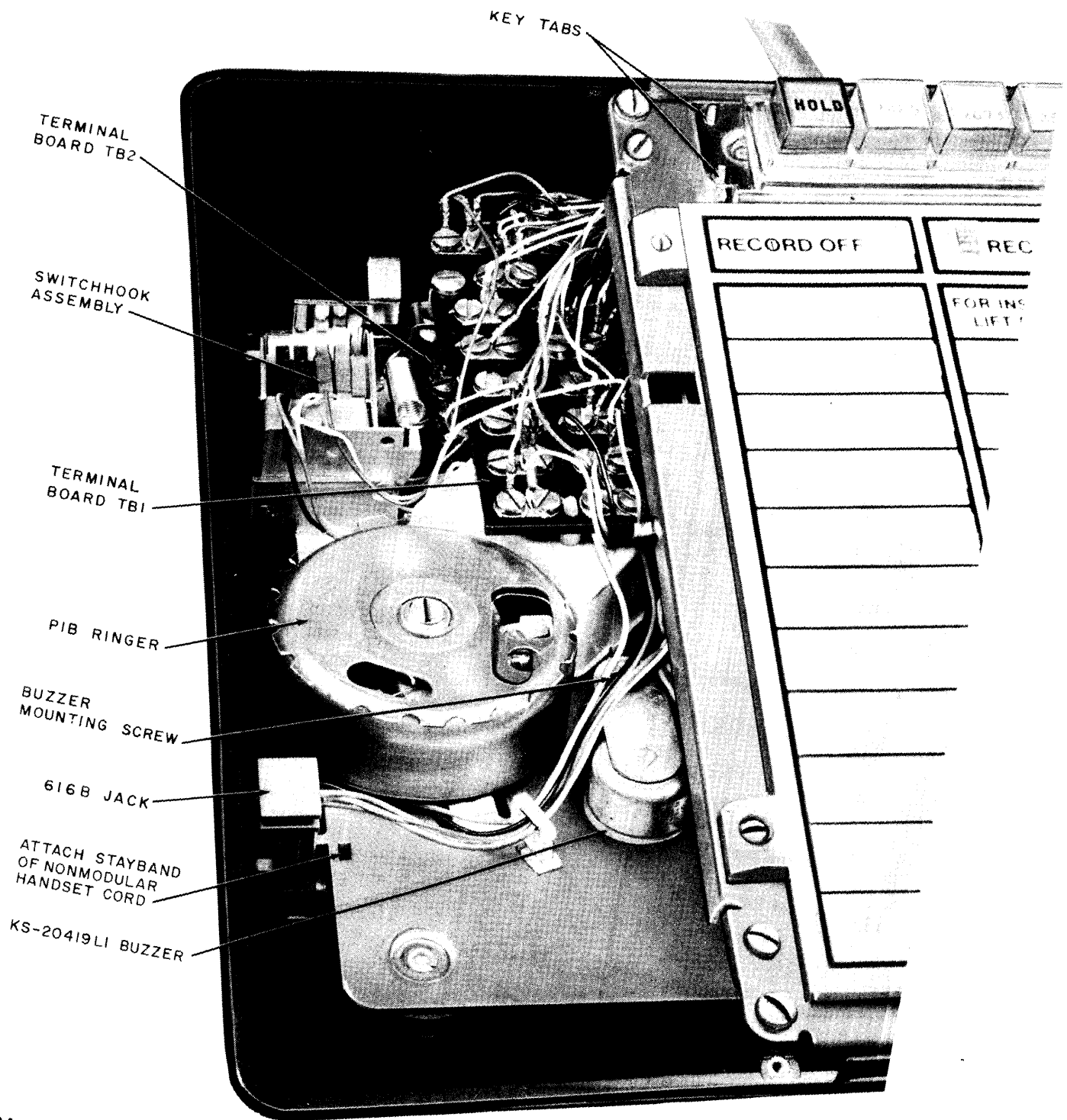
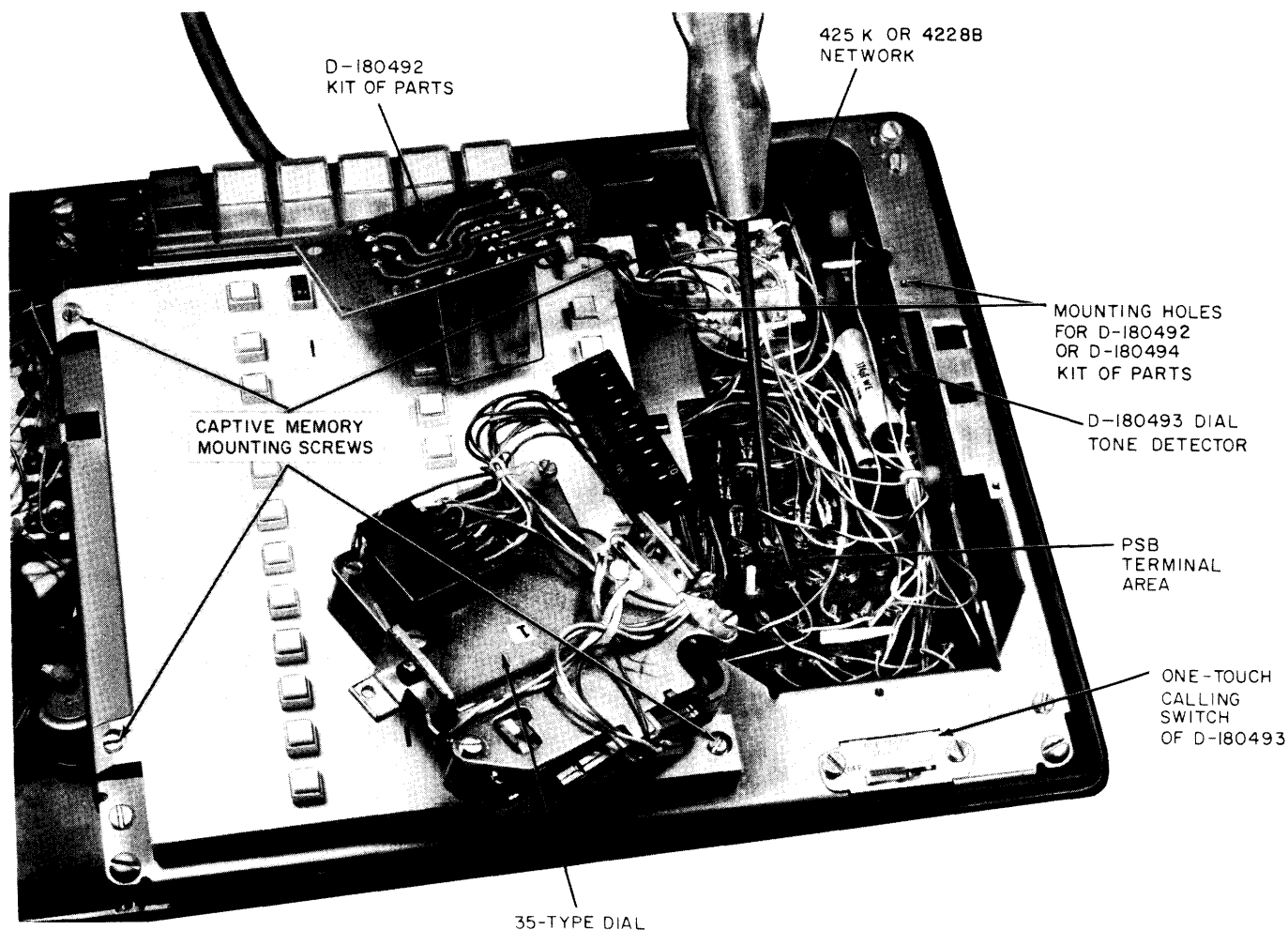


Fig. 3—2872A1M or 2872A2M Telephone Set With Faceplate, Handset, and Handset Cradle Removed





**Fig. 4—2872A1M or 2872A2M Telephone Set—Dial Removed To Show Terminal Area**

- Power supply (PSB) terminal area (Fig. 4)
- Network (Fig. 4)
- Options (Fig. 4):
  - D-180492 (relay kit for speakerphone)
  - D-180493 (dial tone detector and one-touch calling switch kit)
  - D-180494 (2/4-wire relay kit).

(c) Bottom of telephone set (Fig. 6):

- Battery

### Mounting Cord

**3.13** The D50AM-87 mounting cord is amphenol ended at the equipment end and equipped with 508-type plugs for terminating on the back of the 635-type key module at the telephone set end. The conductors terminated in the 508-type plugs provide the major line service requirements. Spade-tipped conductors are provided for auxiliary control functions or options and are terminated directly on associated equipment, terminal boards, or stored.

### Network Terminals

**3.14** For access to the network terminals:

- (1) Remove the faceplate (3.17).

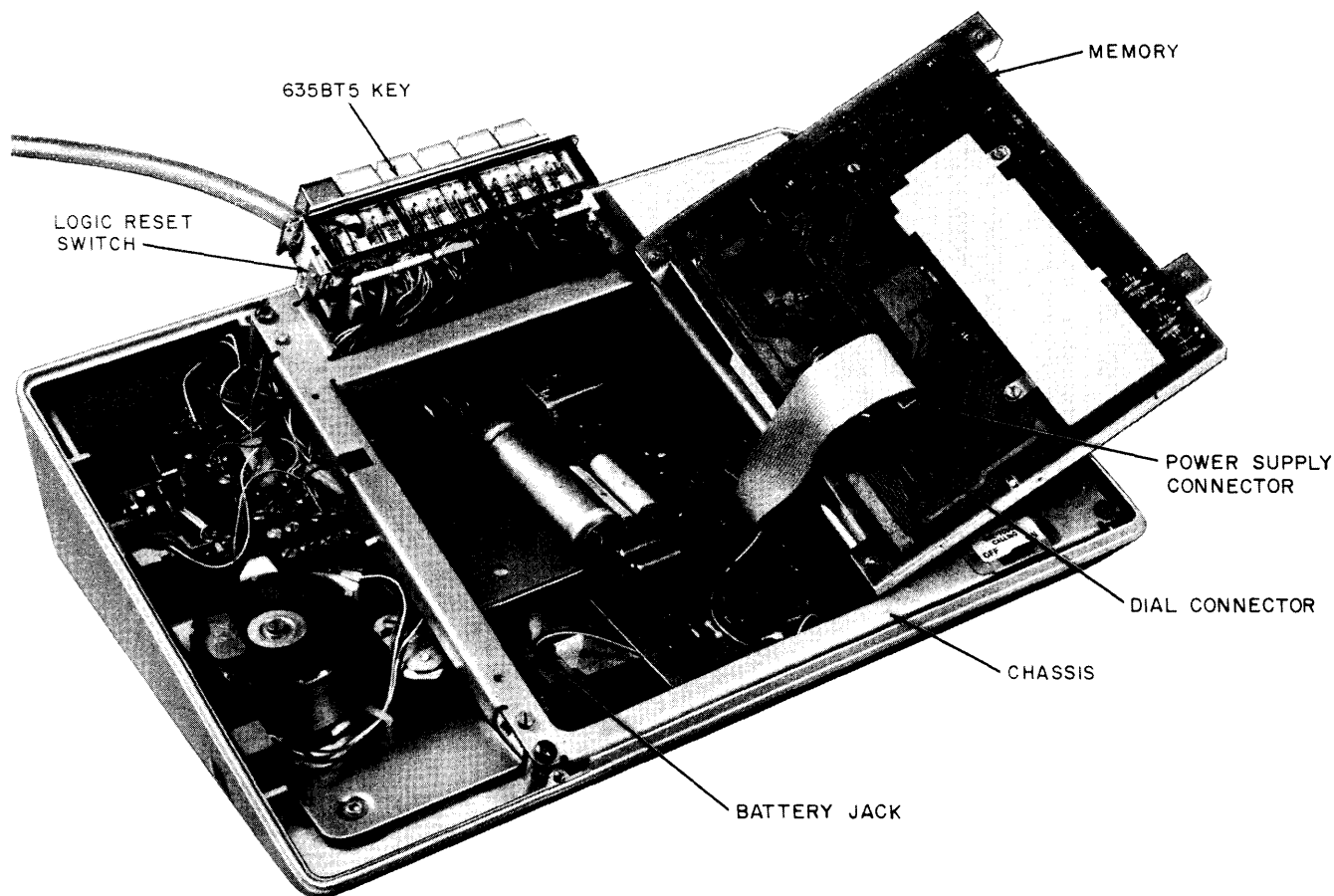


Fig. 5—2872A1M or 2872A2M Telephone Set, Internal View, Overall

- (2) Loosen the captive cover screw at the bottom of the white cover around the dial (Fig. 2).
- (3) Remove the cover.
- (4) To replace the cover, the three tabs of the cover (one at the top center and one at each side just above the dial) must be aligned with holes in the chassis before the screw is refastened. Failure to do this will result in improper seating of the faceplate.

#### Power Supply (PSB), Terminals

**3.15** To access the terminal field on the power supply board, proceed as follows:

- (1) Remove the faceplate (3.17).

- (2) Loosen the captive cover screw at the bottom of the white cover around the 35AG3A dial (Fig. 2).
- (3) Remove the cover.
- (4) Remove the two screws that hold the dial in place.
- (5) Gently raise the dial and disconnect 12 position plug from terminal board.
- (6) Rotate dial over onto the memory.
- (7) To reassemble; reverse procedure.
- (8) To replace the cover, the three tabs of the cover (one at the top center and one at each side just above the dial) must be aligned with holes in the chassis before the screw is refastened.

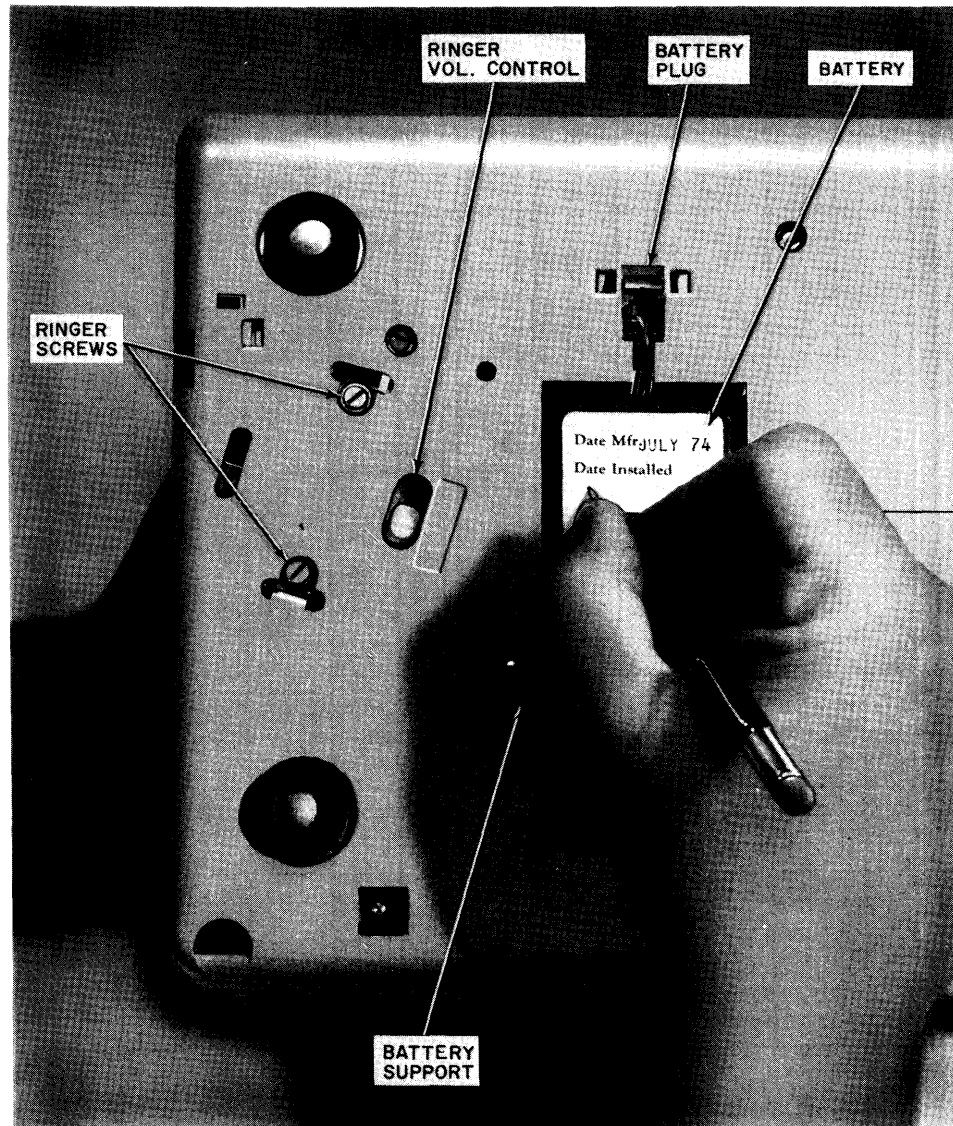


Fig. 6—2872A1M or 2872A2M Telephone Set, Bottom View

Failure to do this will result in improper seating of the faceplate.

#### Line Key Removal

**3.16** To remove, use the following procedure:

- (1) Remove faceplate (3.17).
- (2) Push the key toward the rear of the set to unlock it from the tabs.

- (3) Raise the metal plate of the key just above the tabs and move the key toward the left, then raise the right end of the key until it clears the chassis of the set.

**Caution:** Do not damage contact strips which protrude from bottom right side of key or logic reset switch attached on HOLD side of key.

- (4) Lift the key completely out of the set.
- (5) Replace key by reverse procedure.



**TABLE B**  
**CONNECTIONS—2872A1M OR 2872A2M TELEPHONE SET WITH 3B SPEAKERPHONE**

LEAD DESIG		COLOR	TEL. SET (NOTE 1)		CONNECT								CONN CABLE AT KEY EQUIP		
					FROM			TO							
					CONT UNIT (NOTE 4)		95B1 PWR UNIT (NOTE 3)	149B ADPT (DIOR CORD)	666B TRANS. (T7A CORD)		760A LSPK (R2FK CORD)	2012B TRNSF			
			FROM	TO PSB TERM.	55A	55B		TERM.	COLOR	TERM.	COLOR				
Tel Set	T1	V-G	*	2	19	1		8A							
	R1	G-V	*	11	28	10		7A							
	A1				12	2		A1							
	AG	V-S	*	F†	5	11		12A							
	LK	S-V	*	17	11	35		11A							
	R or R1				18	34		1B							
	R or R1				9	25		1A							
	B or B1				17	33		2B							
D-180492 Kit of Parts (Note 2)	B or B1				8	24		2A							
	VDD	W-G		21											
	PFR	BL-V		20											
	SHi	G-W		18											
	LK	BL-R		17											
	SHa	R-BL		16											
	B+	BK-BL		15											
666B Trans	C <sub>E</sub>	BL-BK		10											
	M1				4	7			S-BK	1					
	P1				13	8			BL-R	2					
	—15V				14	16			BK-S	3					
	S				3	18			O-BK	5					
	A1				29	19			Y-O	6					
	F1				2	17			G-Y	7					
	LK				11	35			BK-O	8					
760A LSPK	SP1				34	20					G				
	SP2				33‡	29‡					R				
95B1 Pwr Unit	AC1						3	3B						BL-V	*
	AC2						4	4B						V-BL	*
2012B Trnsf	AC1				27	27							1		
	AC2				36	36							2		

\* Insulated and stored.

† Terminal on network.

‡ To reduce loudspeaker volume, move SP2 lead to terminal 24 (55A) or 30 (55B).

**Notes:**

1. Plug telephone set mounting cord into 149B adapter.
2. When installing the D-180492 Kit of Parts, remove (BK) strap lead between PSB terminals 10 and 15; remove (BK) lead from PSB terminal 20; insulate and store.
3. Both 95B1 power unit and 2012B transformer must be connected for speakerphone operation.
4. When 55A control unit is used, it must be the type modified for TOUCH-TONE, and strap terminals 20 and 21 (55A) or 4 and 5 (55B).

**TABLE C**  
**CONNECTIONS – 2872A1M OR 2872A2M TELEPHONE SET WITH 3B SPEAKERPHONE AND ONE-TOUCH CALLING**

LEAD DESIG		COLOR	TEL SET (NOTE 1)		CONNECT								CONN CABLE AT KEY EQUIP	
					FROM			TO						
			FROM	TO PSB TERM.	CONT UNIT (NOTE 5)		95B1 PWR UNIT (NOTE 3)	149B ADPT (DIOR CORD)	666B TRANS (T7A CORD)		760A LSPK (R2FK CORD)	2012B TRNSF		
					55A	55B		TERM.	COLOR	TERM.	COLOR			
Tel Set	T1	V-G	*	2	19	1		8A						
	R1	G-V	*	11	28	10		7A						
	A1				12	2		A1						
	AG	V-S	*	F†	5	11		12A						
	LK	S-V	*	17	11	35		11A						
	SPO	O-V	*	34	3	18		5B					O-V	*
	R or R1				18	34		1B						
	R or R1				9	25		1A						
	B or B1				17	33		2B						
	B or B1				8	24		2A						
D-180492 Kit of Parts (Note 2)	VDD	W-G		21										
	PFR	BL-V		20										
	SHi	G-W		18										
	LK	BL-R		17										
	SHa	R-BL		16										
	B+	BK-BL		15										
	C <sub>E</sub>	BL-BK		10										
D-180493 Kit of Parts (Note 4)	SPO	G-Y		34										
	COM	BK-O		29										
	SPR	Y-BL		27										
	DTT	BL-Y		26										
	PL	O-R		25										
	DR	Y-O		24										
	VDD	R-O		21										
	DT	O-Y		19										
	LK	Y-G		17										
	INPUT	G-R		11										
	PB	O-BK		9										
	INPUT	G-R		2										
	Switch	S		28										
	S		29											
666B Trans	M1				4	7			S-BK	1				
	P1				13	8			BL-R	2				
	-51V				14	16			BK-S	3				
	S				3	18			O-BK	5				
	A1				29	19			Y-O	6				
	F1				2	17			G-Y	7				
	LK				11	35			BK-O	8				
760A Lspk	SP1				34	20					G			
	SP2				33 $\frac{5}{8}$	29 $\frac{1}{2}$					R			
95B1 Pwr Unit	AC1						3	3B					BL-V	*
	AC2						4	4B					V-BL	*
2012B Trnsf	AC1				27	27						1		
	AC2				36	36						2		

\* Insulated and stored.

† Terminal on network.

‡ To reduce loudspeaker volume, move SP2 lead to terminal 24 (55A) or 30 (55B).

**Notes:**

1. Plug telephone set mounting cord into 149B adapter.
2. When installing the D-180492 Kit of Parts, remove (BK) strap lead between PSB terminals 10 and 15; remove (BK) lead from PSB terminal 20; insulate and store.
3. Both 95B1 power unit and 2012B transformer must be connected for speakerphone operation.
4. When installing the D-180493 Kit of Parts, remove (BK) strap leads from PSB terminals 19, 26, and 29; insulate and store.
5. When 55A control unit is used, it must be the type modified for TOUCH-TONE, and strap terminals 20 and 21 (55A) or 4 and 5 (55B).



**TABLE D**  
**CONNECTIONS—2872A1M OR 2872A2M TELEPHONE SET WITH 4A SPEAKERPHONE, USING 82A CONNECTING BLOCK**

LEAD DESIG		COLOR	TEL SET		82A CONN BLK (NOTE 1)	66E3-25 CONN BLOCK		
			FROM	TO PSB TERM.		COLOR	FROM	TO
Tel Set	T1	V-G	*	2	(Note 2)			
	R1	G-V	*	11				
	A1							
	AG	V-S	*	F †				
	LK	S-V	*	17				
D-180492 Kit of Parts (Note 3)	VDD	W-G		21				
	PFR	BL-V		20				
	SHi	G-W		18				
	LK	BL-R		17				
	SHa	R-BL		16				
	B+	BK-BL		15				
	C <sub>E</sub>	BL-BK		10				
85B1 Power Unit						BR-V	48	*
	AC1	BK			Strap AC1 to 24			48
						V-BR	47	*
	AC2	Y			Strap AC2 to 49			47
95B1 Power Unit (Note 4)						BL-V	42	*
	AC1	R						42
						V-BL	41	*
	AC2	G						41

\* Insulated and stored.

† Terminal on network.

**Notes:**

1. Plug mounting cords of telephone set, 108A loudspeaker, and 680A transmitter into 82A connecting block. Install option plug in ringer cutoff mode.
2. For 1A1 or 1A2 KTS, connect link between 2 and A1. For 1A KTS, connect link between 19 and A1.
3. When installing D-180492 Kit of Parts, remove the (BK) strap lead between PSB terminals 10 and 15. Also remove the (BK) lead from PSB-20, insulate and store.
4. Both 95B1 and 85B1 power units must be connected for speakerphone operation.

**Faceplate Removal**

**3.17** The faceplate is held in place by two snaps bonded to the faceplate and aligned to fit holes in the chassis. To remove the faceplate, grasp it by any convenient edges and lift.

**Handset Cradle Removal**

**3.18** To remove the handset cradle from the housing, proceed as follows:

- (1) Remove the faceplate (3.17), and place the handset aside.

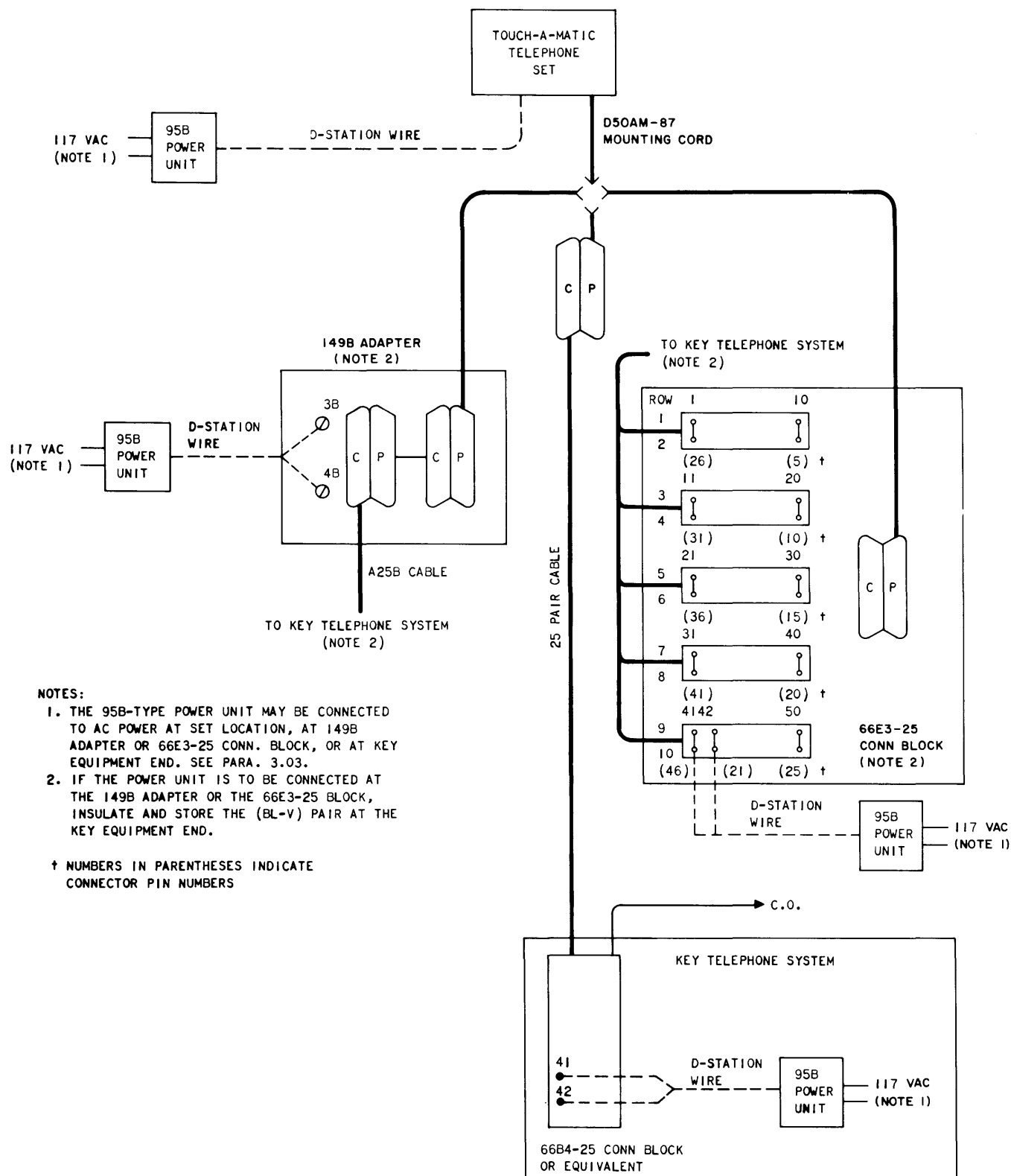


Fig. 7—2872A1M or 2872A2M Telephone Set, Alternate Power Connection Methods

- (2) Disengage the captive cradle screws located in the two tabs on the cradle (Fig. 2).
- (3) Lift the cradle, by pulling up on the plunger, and remove.
- (4) Replace the handset cradle by sliding it sideways to engage the clips with the mating tabs in the side of the housing.

**Caution:** *The plunger must be held from the topside of the cradle as it is slid into position to prevent damage to the switchhook arm.*

- (5) Refasten the captive cradle screws.

#### Housing Removal

**3.19** To remove, proceed as follows:

- (1) Unplug the handset cord, at the telephone set end and remove handset.
- (2) Remove the faceplate (3.17).
- (3) Remove the handset cradle (3.18).

**Caution:** *Attempting to remove the housing without removing the handset cradle may damage the switchhook arm.*

- (4) Disengage only the four captive housing screws (Fig. 2) located in the extreme upper and lower edges of the chassis.
- (5) Separate the housing from the telephone set base.
- (6) Feed mounting cord through hole in bottom of housing as housing is removed.
- (7) Before replacing the housing, lift the set to check that the shoulders of the battery jack are against the two tabs on the chassis. Misalignment may cause the bottom of the housing to bow.
- (8) When replacing the housing, keep the handset jack from being trapped between the housing and the chassis.

#### 4. CONNECTIONS

- 4.01** Telephone set connections are shown in Fig. 8 and Table K.

**Caution:** *Some conductor assignments are not standard (Table K).*

- 4.02** Refer to Table A for connection reference for all options.

- 4.03** A partial functional schematic is shown on Fig. 13.

#### 5. OPERATION

##### Record A Number Into Memory

- 5.01** To record:

- (1) Remove the faceplate (3.17).
- (2) Write or type the desired name and telephone number for a selected memory button on the associated position of the directory sheet.
- (3) Replace the directory sheet and faceplate.
- (4) Depress the RECORD button. The RECORD lamp adjacent to the RECORD button will light. (A number can be called and recorded simultaneously by lifting handset before depressing the RECORD button.)
- (5) Depress the specific memory button adjacent to the desired telephone number listed on the directory sheet.
- (6) Manually dial the desired telephone number  
If an access code and pause for second dial tone is required:
  - (a) Dial the access digit(s) for the outside line.
  - (b) Push the WAIT button when the RECORD lamp relights. (The WAIT entry counts as one digit.)
  - (c) Dial the telephone number.

**Note:** A number up to 15 digits in length may be recorded. The RECORD lamp will go out momentarily as each digit is dialed.

If exactly 15 digits are recorded, the RECORD lamp will go out and stay out, indicating that the dialer has been reset. If a memory button has not been depressed, the RECORD lamp will go out when the first digit is dialed and recording operation will be voided.

- (7) Depress the RECORD OFF button if less than 15 digits are recorded. The RECORD lamp will go out. The dialer will be reset. The number is now stored in the selected memory. The dialer will also be reset by a switchhook, line key, or speakerphone operation.

#### **Change A Number In Memory**

**5.02** Whenever a new number is recorded, in a previously used memory position, it will automatically replace the previously stored number.

#### **Delete A Number From Memory**

**5.03** Complete the following operations in succession:

- (1) Depress the RECORD button.
- (2) Depress the memory button corresponding to the name and number to be deleted.
- (3) Depress the RECORD OFF button.

#### **Automatically Dial A Number From Memory**

**5.04** To automatically dial a number:

- (a) For factory wired sets go off-hook, listen for dial tone, and depress the desired memory button. If WAIT input has been recorded, automatic dialing will stop. When second dial tone is heard, depress memory button again to complete automatic dialing.
- (b) For sets equipped with the dial tone detector only, go off-hook and depress the memory button.
- (c) For sets equipped with the one-tone calling option (with speakerphone and dial tone detector), simply depress the memory button.

#### **LAST NUMBER DIALED Feature**

**5.05** The TOUCH-A-MATIC telephone set automatically records into the LAST NUMBER

DIALED position (Fig. 1) any number dialed using the standard telephone dial. Each number in the LAST NUMBER DIALED position is automatically replaced by the next number manually dialed. Although the unit is recording, the RECORD lamp does not light at any time during this operation.

**5.06** Operation of LAST NUMBER DIALED feature:

(a) With no access digit(s) required:

- (1) Go off hook
- (2) Listen for dial tone
- (3) Manually dial telephone number
- (4) To redial same number automatically:

(a) For factory-wired sets, go off-hook, listen for dial tone and depress LAST NUMBER DIALED button.

(b) For sets equipped with the dial tone detector only, go off-hook and depress the LAST NUMBER DIALED button.

(c) For sets equipped with the one-touch calling option (with speakerphone and dial tone detector), simply depress the LAST NUMBER DIALED button.

(b) With access code and pause for second dial tone is required:

- (1) Go off-hook.
- (2) Listen for dial tone.
- (3) Dial access digit(s).
- (4) Depress WAIT button, after second dial tone is heard.
- (5) Manually dial telephone number.
- (6) To redial same number automatically:

(a) For factory-wired sets, go off-hook, listen for dial tone and depress LAST NUMBER DIALED button. If WAIT input has been recorded, automatic dialing will

stop. When second dial tone is heard, depress LAST NUMBER DIALED button again to complete automatic dialing.

(b) For sets equipped with the dial tone detector only, go off-hook and depress LAST NUMBER DIALED button.

(c) For sets equipped with the one-touch calling option (with speakerphone and dial tone detector), simply depress the LAST NUMBER DIALED button.

### End-to-End Signaling

**5.07** For end-to-end signaling (such as data transmission) this set has the capability to intermix manual and automatic dialing. This can be accomplished if the following procedures are observed:

(a) If the telephone set is equipped with the one-touch calling option the initial number must be dialed automatically (even if the one-touch calling switch is in the OFF position). This allows the dial tone detector to complete its function and then additional numbers may be dialed automatically or manually.

(b) If, at any time, information is keyed in manually, the RECORD OFF button must be depressed before another number can be dialed from memory. (The RECORD lamp will not light at any time but depressing the RECORD OFF button will remove the set from the "last number dialed" mode and allow additional automatic dialing.)

**Note:** If the telephone set is to be used for end-to-end signaling, V option (with polarity guard) shall be used, [Fig. 8 (B)].

## 6. MAINTENANCE

**6.01** In case of power failure, the automatic dialing feature cannot be used. The battery retains the number associated with each of the memory buttons for at least 24 hours. If power loss exceeds 24 hours, the numbers may have to be rerecorded.

### Trouble Analysis

**6.02** When trouble is encountered, the subsequent procedure should be followed:

- (1) Confirm improper operation either as a basic telephone set or as an automatic dialer (Part 5).
- (2) Check for improper connections.
- (3) Refer to Table M, and the following paragraphs.

### Battery

**6.03** The KS-20390L2 and L4 batteries are not completely interchangeable. The List 2 battery may be used in both sets but the List 4 battery should only be used in the 2872A2M telephone set. Either battery has an expected life of about 4 years. It can be replaced without loss of memory provided that commercial AC power to the set is continuously maintained. To replace the battery, proceed as follows (Fig. 6):

- (1) Tilt the front of the set up.
- (2) Unplug the battery.
- (3) Loosen captive screw on the battery support.
- (4) Remove battery support.
- (5) Remove battery.
- (6) Install new battery.

### Memory

**6.04** The memory may be replaced in the following manner:

**Note:** Removal of the memory results in loss of stored telephone numbers.

- (1) Remove the faceplate (3.17).
- (2) Loosen the four captive memory mounting screws (Fig. 4).
- (3) Rotate the left edge of the memory upward as shown in Fig. 5.



- (4) Disengage the two connectors by pulling them perpendicular to the printed wiring board.
- (5) Replace the memory by engaging the dial connector first. The dial connectors are keyed, one position is filled and should fit over the vacant position in the row of pins. The gray power supply cable should not be twisted. It should form a loop as shown in Fig. 5 when connected to the board.
- (6) Reassemble set.
- (7) Test per 3.07

#### Dial

##### 6.05 To replace:

- (1) Proceed per 3.15.
- (2) Loosen the four captive mounting screws of the memory (Fig. 4).
- (3) Gently raise the left side of the memory and rotate to position shown in Fig. 5. This will expose 10-position black dial connector.

**Caution:** *Do not remove the gray power supply connector in the process of changing the dial, since this will result in complete loss of stored telephone numbers.*

- (4) Carefully disengage the dial connector by pulling on it perpendicular to the printed wiring board.
- (5) Lift the dial out.
- (6) To replace a new dial, reverse the previous steps. The connectors are keyed to orient them relative to the pins. Observe the correct orientation and do not force the connection.

#### Line Key

##### 6.06 To replace:

- (1) Remove key per 3.16.
- (2) Access PSB terminal area per 3.15.

- (3) Disconnect logic reset leads from PSB terminals.
- (4) Remove the two contact strips and the 508-type plugs from the back of the key.
- (5) Install new key.
- (6) Reassemble the set.
- (7) Test for operation of the logic reset switch [3.07(7)].

#### Ringer

##### 6.07 To replace:

- (1) Remove the faceplate (3.17) and place handset aside.
- (2) Remove the cradle (3.18).
- (3) Disconnect the ringer leads.
- (4) Tilt the front of the set up.
- (5) Unfasten ringer mounting screws (Fig. 6).
- (6) Remove ringer.
- (7) Replace new ringer and assemble in reverse order. The leads should be routed as shown in Fig. 3 to prevent contact with the gong and subsequent damping of the ringer output. Dial ringback code to test ringer.
- (8) Reassemble set.

#### Buzzer

##### 6.08 To replace the buzzer:

- (1) Remove the faceplate (3.17), and place handset aside.
- (2) Remove the cradle (3.18).
- (3) Remove the buzzer mounting screw.
- (4) Remove the mounting screw and spacer for TB1 (Fig. 3).
- (5) Move board TB1 to gain access to the appropriate terminals on TB2.

- (6) Remove appropriate leads [Fig. 8(H)].
- (7) Reassemble. When replacing TB1, locate its tabs in the slots of the chassis before refastening the TB1 mounting screw.

**Handset Jack**

**6.09** To replace the 616B handset jack:

- (1) Remove the faceplate (3.17), and place handset aside.
- (2) Remove the cradle (3.18).
- (3) Remove the mounting screw and spacer for TB1 (Fig. 3).
- (4) Move board TB1 to gain access to the appropriate terminals on TB2.
- (5) Disconnect the appropriate leads [Fig. 8(H)], and remove jack.
- (6) Reassemble. When replacing TB1, locate its tabs in the slots of the chassis before refastening the TB1 mounting screw.

**Handset**

**6.10** A defective G15A handset may be replaced by unplugging the H4DU cord and inserting

it into a new handset. To replace the G15A handset with a G3A handset or a G6-, G7-, or G8-type amplifying handset, proceed as follows:

- (1) Unplug H4DU handset cord at telephone set end.
- (2) Remove faceplate (3.17), and place handset aside.
- (3) Remove handset cradle (3.18).
- (4) Disconnect 616B handset jack (6.09). (Jack may be removed or stored just to right of ringer).
- (5) Insert spade-tipped end of handset cord through hole in the side of the housing.
- (6) Attach stayboard hook to bottom of chassis (Fig. 3).
- (7) Route leads as shown in Fig. 3.
- (8) Make connections [Fig. 8(H)].
- (9) Reassemble set.

**6.11** For maintenance information on the 3B or 4A speakerphone systems, refer to Sections 512-620-100 or 512-700-100, respectively.

TABLE E

**CONNECTIONS—2872A1M OR 2872A2M TELEPHONE SET WITH 4A SPEAKERPHONE AND ONE-TOUCH CALLING,  
USING 82A CONNECTING BLOCK**

LEAD DESIG		COLOR	TEL SET		82A CONN BLK (NOTE 1)	66E3-25 CONN BLOCK			108A LSPK SET		
			FROM	TO PSB TERM.		COLOR	FROM	TO	COLOR	FROM	TO
Tel Set	T1	V-G	*	2							
	R1	G-V	*	11							
	IT	V-BR	*	34					W-G	8	21
	IR								G-W	10	*
	A1				(Note 2)						
	AG	V-S	*	F †							
	LK	S-V	*	17							
D-180492 Kit of Parts (Note 3)	VDD	W-G		21							
	PFR	BL-V		20							
	SHi	G-W		18							
	LK	BL-R		17							
	SHa	R-BL		16							
	B+	BK-BL		15							
	C <sub>E</sub>	BL-BK		10							
D-180493 Kit of Parts (Note 4)	SPO	G-Y		34							
	COM	BK-O		29							
	SPR	Y-BL		27							
	DTT	BL-Y		26							
	PL	O-R		25							
	DR	Y-O		24							
	VDD	R-O		21							
	DT	O-Y		19							
	LK	Y-G		17							
	INPUT	G-R		11							
	PB	O-BK		9							
	INPUT	G-R		2							
	SWITCH	S		28							
85B1 Power Unit						BR-V	48	*			
	AC1	BK			Strap AC1 to 24						48
						V-BR	47	*			
	AC2	Y			Strap AC2 to 49						47
95B1 Power Unit (Note 5)						BL-V	42	*			
	AC1	R									42
	AC2	G				V-BL	41	*			41

\* Insulated and stored.

† Terminal on network.

**Notes:**

1. Plug mounting cords of telephone set, 108A loudspeaker, and 680A transmitter into 82A connecting block. Install option plug in ringer cutoff mode.
2. For 1A1 or 1A2 KTS, connect link between 2 and A1. For 1A KTS, connect link between 19 and A1.
3. When installing D-180492 Kit of Parts, remove the (BK) strap lead between PSB terminals 10 and 15. Also remove the (BK) lead from PSB-20; insulate and store.
4. Remove (BK) lead from PSB terminals 19, 26, and 29; insulate and store.
5. Both 95B1 and 85B1 power units must be connected for speakerphone operation.

TABLE F

CONNECTIONS—2872A1M OR 2872A2M TELEPHONE SET WITH 4A SPEAKERPHONE, USING 82B CONNECTING BLOCK

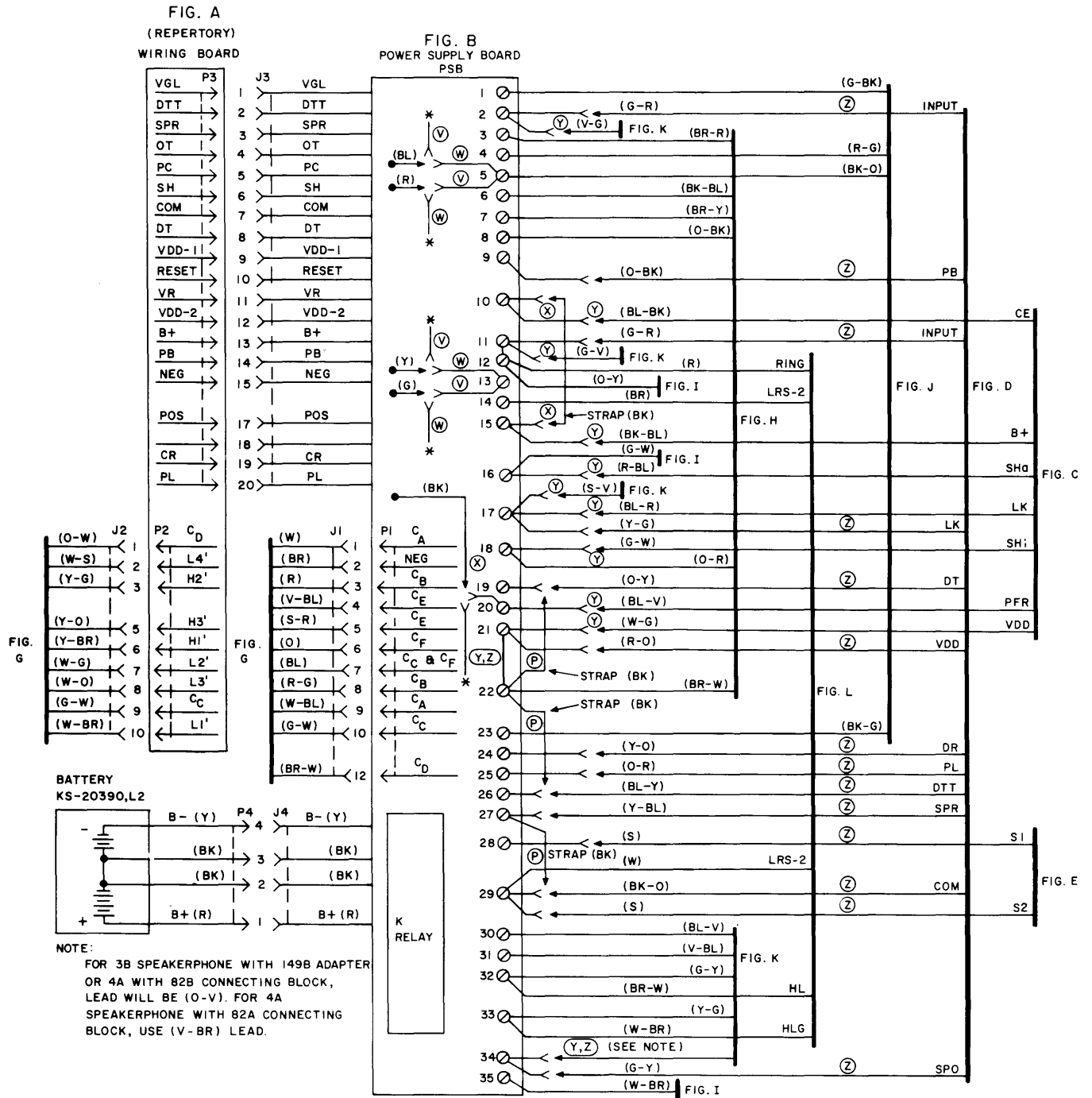
LEAD DESIG		COLOR	TEL SET		82B CONN BLK (NOTE 1)	CONN CABLE AT KEY EQUIP	
			FROM	TO PSB TERM.		COLOR	TO
Tel Set	T1	V-G	*	2	(Note 2)		
	R1	G-V	*	11			
	A1						
	AG	V-S	*	F †			
	LK	S-V	*	17			
D-180492 Kit of Parts (Note 3)	VDD	W-G		21			
	PFR	BL-V		20			
	SHi	G-W		18			
	LK	BL-R		17			
	SHa	R-BL		16			
	B+	BK-BL		15			
	C <sub>E</sub>	BL-BK		10			
85B1 Power Unit	AC1					BR-V	*
		BK			AC1		
	AC2	Y			AC2	V-BR	*
95B1 Power Unit (Note 4)	AC1					BL-V	*
		R			21		
	AC2	G			46	V-BL	*

\* Insulated and stored.

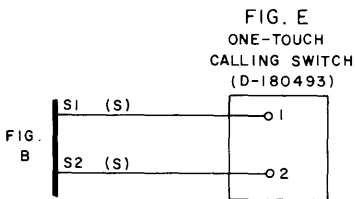
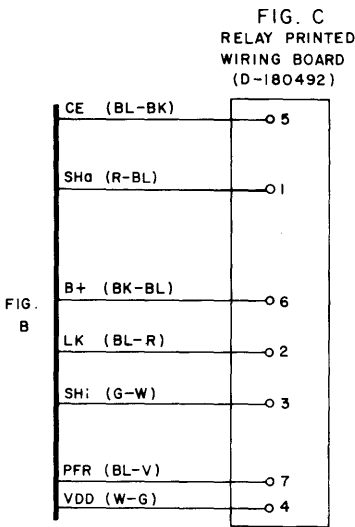
† Terminal on network.

Notes:

1. Plug mounting cords of telephone set, 108A loudspeaker, and 680A transmitter into 82B connecting block. Install option plug in ringer cutoff mode.
2. For 1A1 or 1A2 KTS, connect link between 2 and A1. For 1A KTS, connect link between 19 and A1.
3. When installing D-180492 Kit of Parts, remove the (BK) strap lead between PSB terminals 10 and 15. Also remove the (BK) lead from PSB-20; insulate and store.
4. Both 95B1 and 85B1 power units must be connected for speakerphone operation.







- OPTIONS FOR FIG. B:
- |                                |                             |
|--------------------------------|-----------------------------|
| (P) WITHOUT DIAL TONE DETECTOR | (Z) WITH DIAL TONE DETECTOR |
| (V) WITH POLARITY GUARD        | (Y,Z) WITH ONE-TOUCH OPTION |
| (W) WITHOUT POLARITY GUARD     | * INSULATE AND STORE        |
| (X) WITHOUT SPEAKERPHONE       |                             |
| (Y) WITH SPEAKERPHONE          |                             |

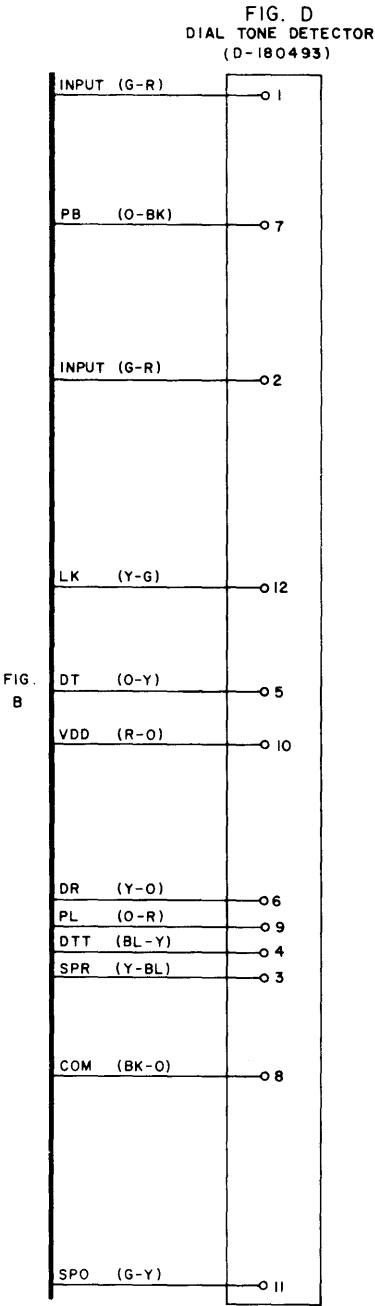


Fig. 8—2872A1M or 2872A2M Telephone Set, Connections (Sheet 2 of 5)

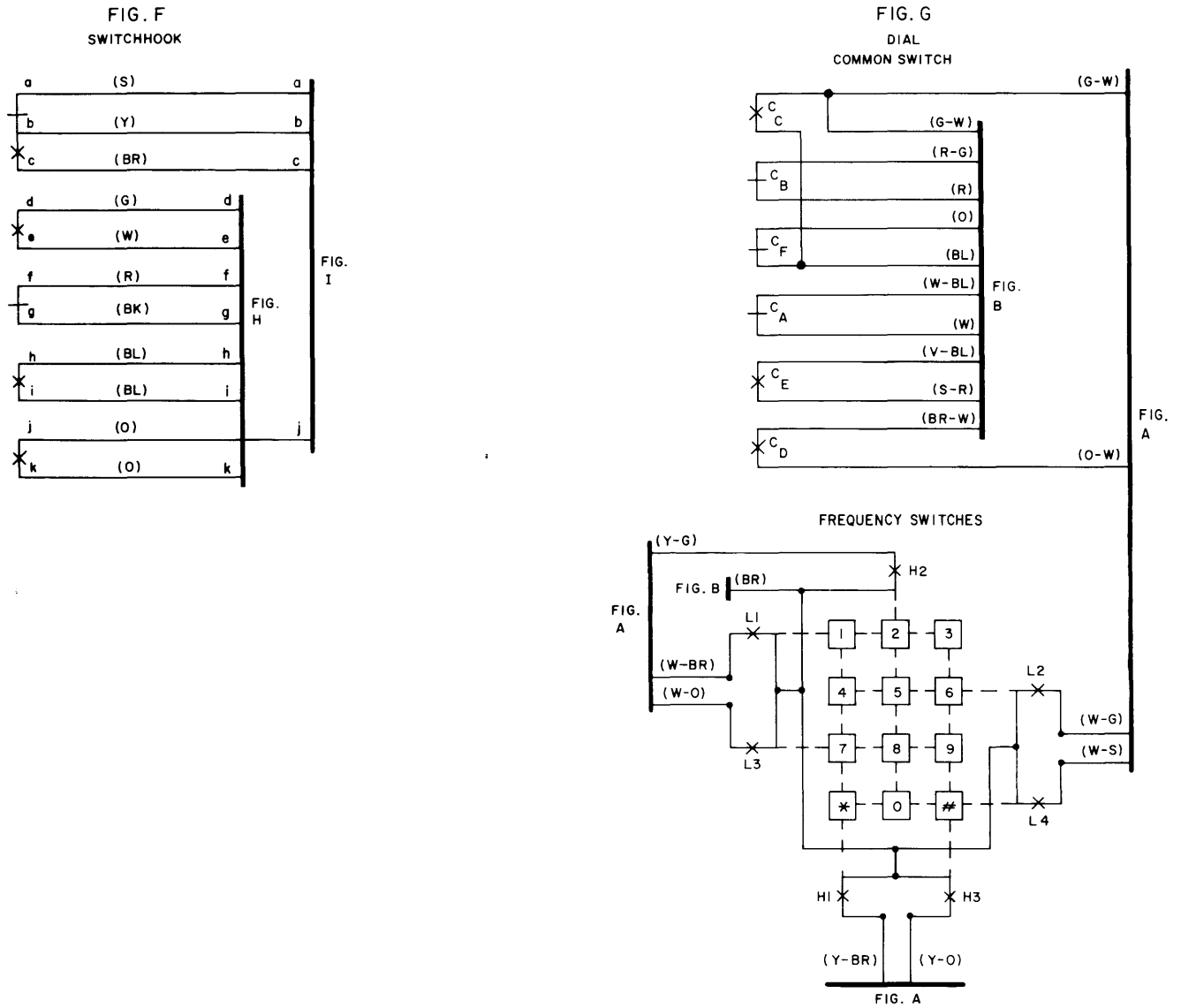


Fig. 8—2872A1M or 2872A2M Telephone Set, Connections (Sheet 3 of 5)

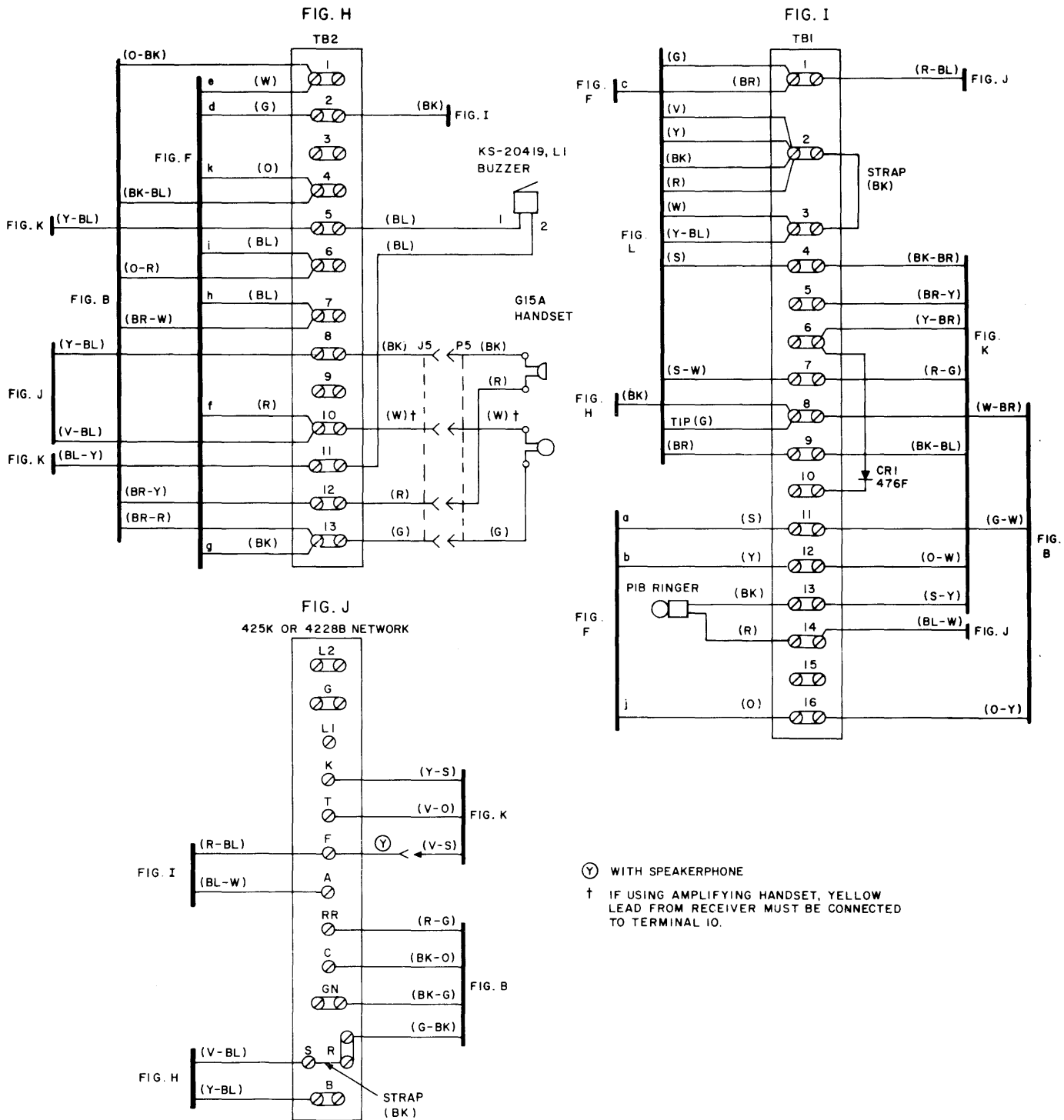
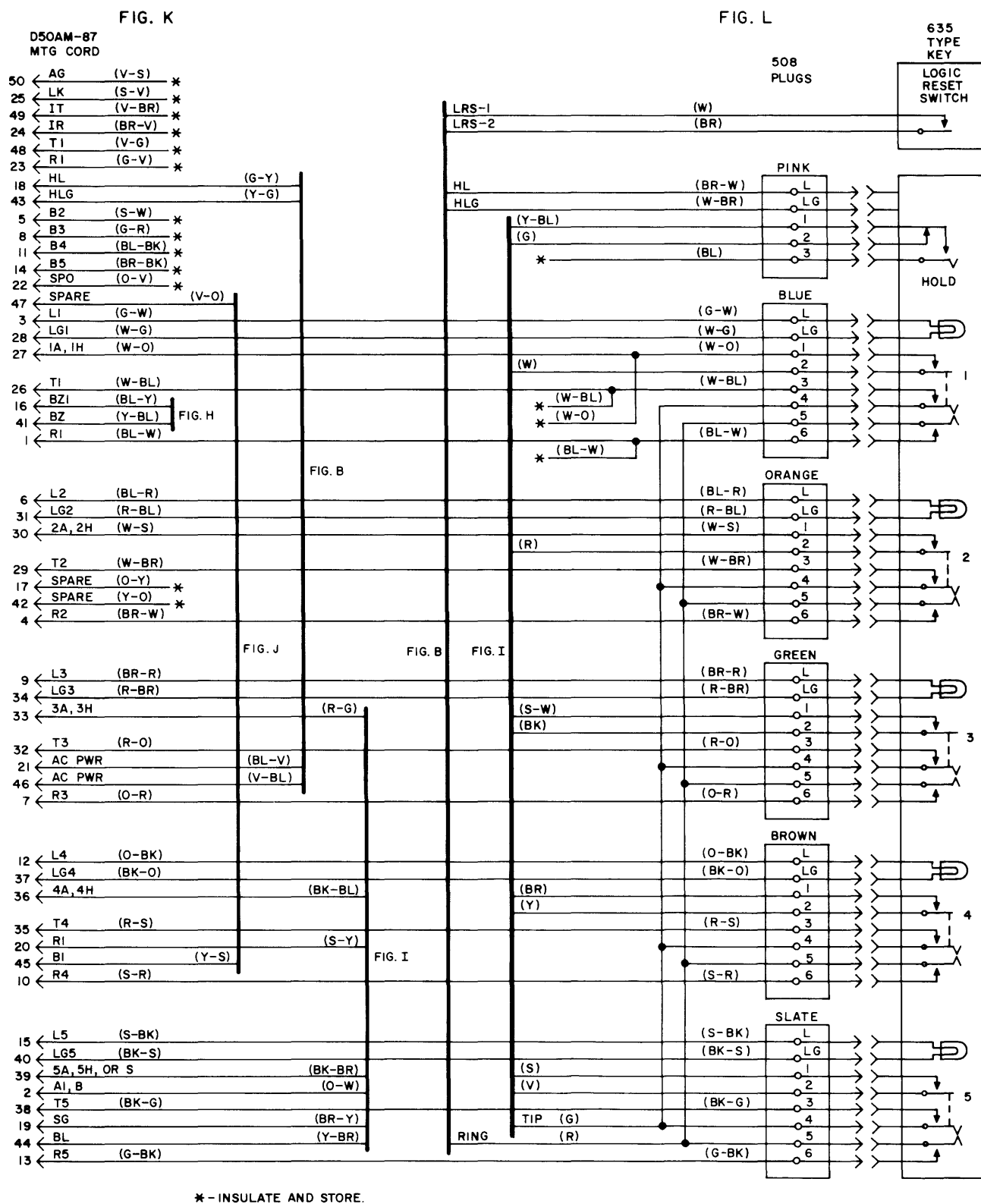


Fig. 8—2872A1M or 2872A2M Telephone Set, Connections (Sheet 4 of 5)



**Fig. 8—2872A1M or 2872A2M Telephone Set, Connections (Sheet 5 of 5)**

TABLE G

**CONNECTIONS—2872A1M OR 2872A2M TELEPHONE SET WITH 4A SPEAKERPHONE AND ONE-TOUCH CALLING,  
USING 82B CONNECTING BLOCK**

LEAD DESIG		COLOR	TEL SET		82B CONN. BLK (NOTE 1)	CONN CABLE AT KEY EQUIP.	
			FROM	TO PSB TERM.		COLOR	TO
Tel Set	T1	V-G	*	2	(Note 2)		
	R1	G-V	*	11			
	A1						
	AG	V-S	*	F †			
	LK	S-V	*	17			
	SPO	O-V	*	34	Strap 10 to 35	O-V	*
D-180492 Kit of Parts (Note 3)	VDD	W-G		21			
	PFR	BL-V		20			
	SHi	G-W		18			
	LK	BL-R		17			
	SHa	R-BL		16			
	B+	BK-BL		15			
	C <sub>E</sub>	BL-BK		10			
D-180493 Kit of Parts (Note 4)	SPO	G-Y		34			
	COM	BK-O		29			
	SPR	Y-BL		27			
	DTT	BL-Y		26			
	PL	O-R		25			
	DR	Y-O		24			
	VDD	R-O		21			
	DT	O-Y		19			
	LK	Y-G		17			
	INPUT	G-R		11			
	PB	O-BK		9			
	INPUT	G-R		2			
	SWITCH	S		28			
		S		29			
85B1 Power Unit	AC1	BK			AC1	BR-V	*
	AC2	Y			AC2	V-BR	*
95B1 Power Unit (Note 5)	AC1	R			21	BL-V	*
	AC2	G			46	V-BL	*

\* Insulated and stored.

† Terminal on network.

**Notes:**

1. Plug mounting cords of telephone set, 108A loudspeaker, and 680A transmitter into 82A connecting block. Install option plug in ringer cutoff mode.
2. For 1A1 or 1A2 KTS, connect link between 2 and A1. For 1A KTS, connect link between 19 and A1.
3. When installing D-180492 Kit of Parts, remove the (BK) strap lead between PSB terminals 10 and 15. Also remove the (BK) lead from PSB-20; insulate and store.
4. Remove (BK) lead from PSB terminals 19, 26, and 29; insulate and store.
5. Both 95B1 and 85B1 power units must be connected for speakerphone operation.



TABLE H

**CONNECTIONS – 2872A1M OR 2872A2M  
TELEPHONE SET WITH DIAL TONE DETECTOR**

LEAD DESIG		COLOR	2872A1M OR 2872A2M TEL SET	
			FROM	TO PSB TERM
2872A1M or 2872A2M Tel Set	Strap	BK	19	*
	Strap	BK	26	*
	Strap	BK	29	*
D-180493 Kit of Parts	Input	G-R		2
	PB	O-BK		9
	Input	G-R		11
	LK	Y-G		17
	DT	O-Y		19
	VDD	R-O		21
	DR	Y-O		24
	PL	O-R		25
	DTT	BL-Y		26
	SPR	Y-BL		27
	COM	BK-O		29
	SPO	G-Y		34
	Switch †	S		*
		S		*

\* Insulated and stored.

† Switch is not required when speakerphone is not provided.

**TABLE I**  
**CONNECTIONS FOR 2/4-WIRE SERVICE**

D-KIT NUMBER	COLOR	CONNECT TO POWER SUPPLY BOARD OR NET. TERM.
D-180494 (Notes 1, 2, and 3)	V	T
	S	F
	BR	PSB-3
	Y-BR	L1
	BL-R	GN
	G-BK	PSB-17
	R-BR	R
	R-O	S
	BL-Y	PSB-34

- Notes:*
1. Move (BK-G) lead from network terminal GN to network terminal L1.
  2. Remove strap lead between network terminal R and S.
  3. Take mounting cord leads (BR-V) and (V-BR) which are insulated and stored, and connect to PSB terminals 17 and 34, respectively.

**TABLE J**  
**CONVERSION OF KEYS FOR SIGNALING**

SELECTIVE SIGNALING							
508 PLUG	COLOR:	BLUE	ORANGE	GREEN	BROWN	SLATE	
	PIN NO:	2	2	2	2	2	1
	LEAD COLOR:	W	R	BK	Y	V	S
Key Functions †	HPPPPP	TB1-3	TB1-2	TB1-2	TB1-2	TB1-2	TB1-4
	HPPPPS	TB1-3	TB1-2	TB1-2	TB1-2	TB1-5	TB1-4
	HPPSSS	TB1-3	TB1-2	TB1-2	TB1-5	TB1-5	TB1-4
	HPPSSS	TB1-3	TB1-2	TB1-5	TB1-5	TB1-5	TB1-4
COMMON SIGNALING (SEE NOTE)							
508 PLUG	COLOR:	BLUE	ORANGE	GREEN	BROWN	SLATE	
	PIN NO:	2	2	2	2	2	1
	LEAD COLOR:	W	R	BK	Y	V	S
Key Functions †	HPPP*P*S	TB1-3	TB1-3	TB1-2	TB1-2	TB1-2	TB1-3
	HPP*P*P*S	TB1-3	TB1-2	TB1-2	TB1-2	TB1-2	TB1-3

*Note:* Remove (BK) strap between TB1-2 and TB1-3.

\* These arrangements use line switch controlled ground for common signal key, used with private or intercommunicating lines. Common signal should be used to operate a common signal relay. Do not wire directly to a buzzer.

† Remove pins to make key nonlocking when used for signaling.

**TABLE K**  
**D50AM-87 MOUNTING CORD AND 508 PLUG CONNECTIONS**

AMPHENOL PLUG			INSIDE TELEPHONE SET						
DESIG	PIN NO.	COLOR	MTG CD TERMINATIONS			SPADE TIP CONDUCTORS FROM 508 PLUGS.			
			SPADE TIP COND. IN MTG. CD	508 PLUGS		PLUG COLOR	PLUG PIN NO.	COLOR	TERM.
				COLOR	PIN NO.				
R(1)	1	BL-W		BL	6	BL	6	BL-W	*
T(1)	26	W-BL		BL	3	BL	3	W-BL	*
A1	2	O-W	TB1-12			BL	2	W	TB1-3
A(1)	27	W-O		BL	1	BL	1	W-O	*
L(1)	3	G-W		BL	L				
LG(1)	28	W-G		BL	LG				
R(2)	4	BR-W		O	6				
T(2)	29	W-BR		O	3				
B(2)	5	S-W	*			O	2	R	TB1-2
A(2)	30	W-S		O	1				
L(2)	6	BL-R		O	L				
LG(2)	31	R-BL		O	LG				
R(3)	7	O-R		G	6				
T(3)	32	R-O		G	3				
B(3)	8	G-R	*			G	2	BK	TB1-2
A(3)	33	R-G	TB1-7			G	1	S-W	TB1-7
L(3)	9	BR-R		G	L				
LG(3)	34	R-BR		G	LG				
R(4)	10	S-R		BR	6				
T(4)	35	R-S		BR	3				
B(4)	11	BL-BK	*			BR	2	Y	TB1-2
A(4)	36	BK-BL	TB1-9			BR	1	BR	TB1-9
L(4)	12	O-BK		BR	L				
LG(4)	37	BK-O		BR	LG				
R(5)	13	G-BK		S	6				
T(5)	38	BK-G		S	3				
B(5)	14	BR-BK	*			S	2	V	TB1-2
A(5)	39	BK-BR	TB1-4			S	1	S	TB1-4
L(5)	15	S-BK		S	L				
LG(5)	40	BK-S		S	LG				
BZ1	16S	BL-Y	TB2-11						
BZ	41S	Y-BL	TB2-5						

\* Insulate and store.

**TABLE K (CONT)**  
**D50AM-87 MOUNTING CORD AND 508 PLUG CONNECTIONS**

AMPHENOL PLUG			INSIDE TELEPHONE SET						
DESIG	PIN NO.	COLOR	MTG CD TERMINATIONS			SPADE TIP CONDUCTORS FROM 508 PLUGS.			
			SPADE TIP COND. IN MTG. CD	508 PLUGS		PLUG COLOR	PLUG PIN NO.	COLOR	TERM.
				COLOR	PIN NO.				
Spare	17	O-Y	*						
Spare	42	Y-O	*						
HL	18	G-Y	PSB-32						
HLG	43	Y-G	PSB-33						
SG	19	BR-Y	TB1-5						
BL	44	Y-BR	TB1-6						
R or R1	20	S-Y	TB1-13						
B or B1	45	Y-S	Net. K						
AC1†	21§	BL-V	PSB-30						
AC2†	46§	V-BL	PSB-31						
SPO‡	22§	O-V	*						
Spare	47	V-O	Net. T						
R1‡	23	G-V	*						
T1‡	48	V-G	*						
IR‡	24	BR-V	*						
IT‡	49	V-BR	*						
LK‡	25	S-V	*						
AG‡	50	V-S	*						
Tip						S	4	G	TB1-8
Ring						S	5	R	PSB-12
						Pink	HL	BR-W	PSB-32
						Pink	HLG	W-BR	PSB-33
						Pink	3	BL	*
						Pink	2	G	TB1-1
						Pink	1	Y-BL	TB1-3

\* Insulate and store.

† 95B1 Power Unit (Touch-A-Matic Power Supply)

‡ Designations for speakerphone options. Refer to Tables B through G.

§ Nonstandard pin numbers.

**TABLE L**  
**TO CONVERT THE 2872A1M OR 2872A2M**  
**TELEPHONE SET FROM 1A1, 1A2, TO**  
**1A OPERATION (SEE NOTE)**

LEAD DESIG	COLOR	FROM (1A1, 1A2)	TO (1A)
SHb	Y	TB1-12	TB1-5
HOLD	Y-BL	TB1-3	TB1-16
HOLD	BL	* (Pink 508 Plug)	TB1-3
HOLD	G	TB1-1	Net. L2
RING	R	PSB-12	Net. L2
SHc †	BR	TB1-1	TB1-6
Net. F ‡	R-BL	TB1-1	TB1-6

\* Insulated and stored.

† Only required when busy-lamp option is provided.

‡ Only required when both busy-lamp and speakerphone options are provided.

**Note:** Tables B through G provide speakerphone connections for 1A1 and 1A2 KTS. The same tables apply for 1A KTS with the following changes:

- (a) The (G-V) R1 lead from the telephone set will connect to L2 of network instead of PSB-11 in all tables.
- (b) If one-touch calling option is provided, input lead from D-180493 Kit of Parts will connect to L2 of network instead of PSB-11 in Tables C, E, and G.

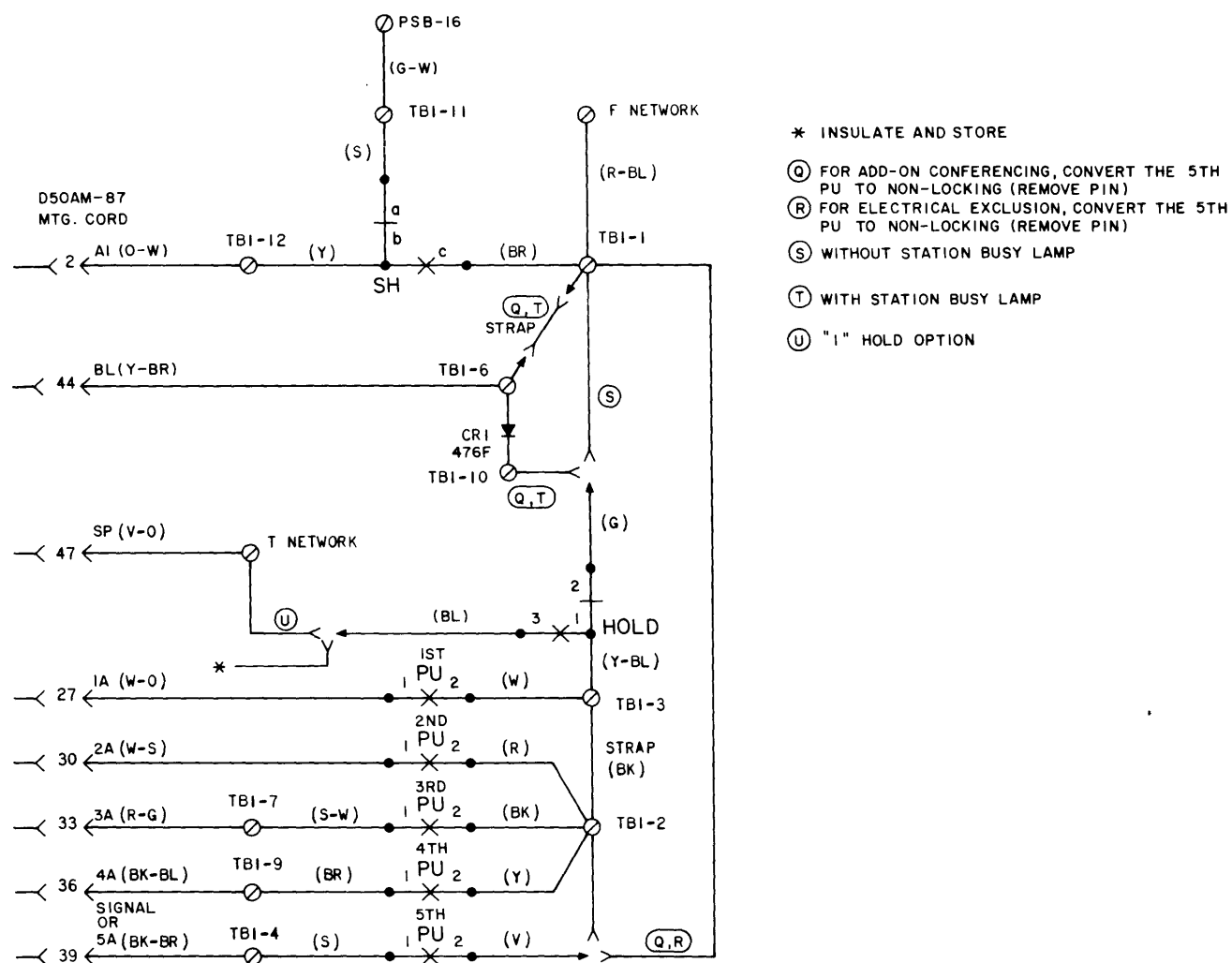


Fig. 9—"I" Hold, Exclusion, Station Busy Lamp, and Add-On Conferencing—1A1 and 1A2 KTS



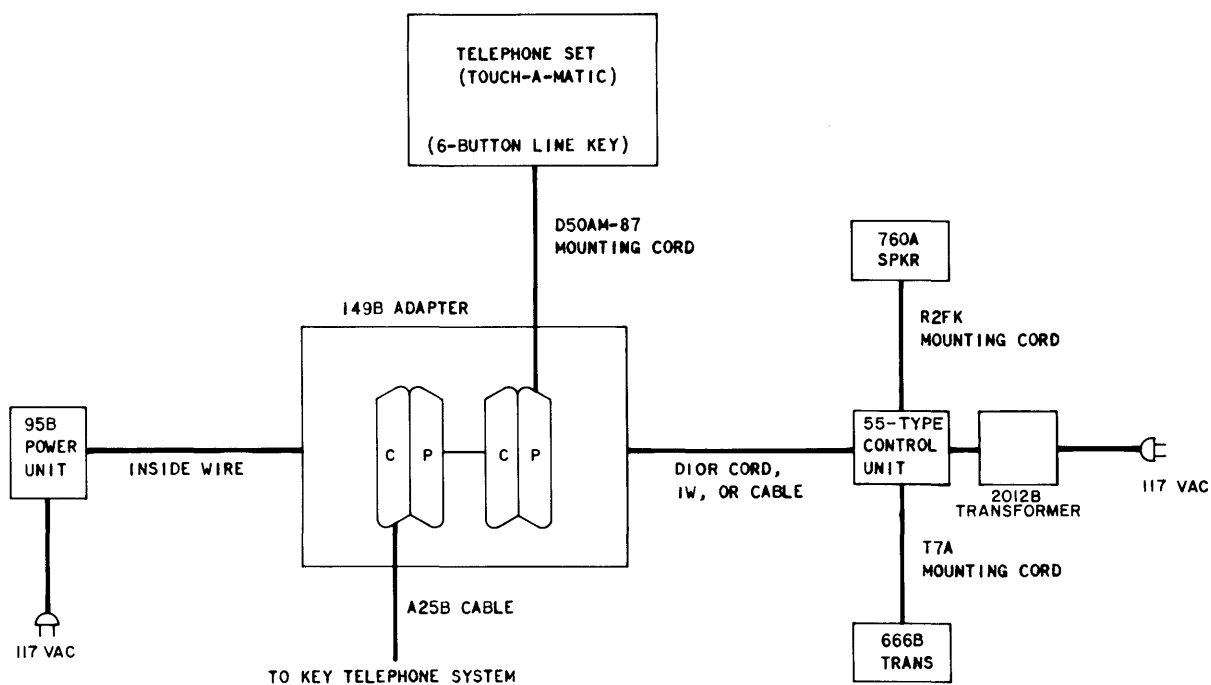


Fig. 10—Block Diagram—2872A1M or 2872A2M Telephone Set Using 3B Speakerphone

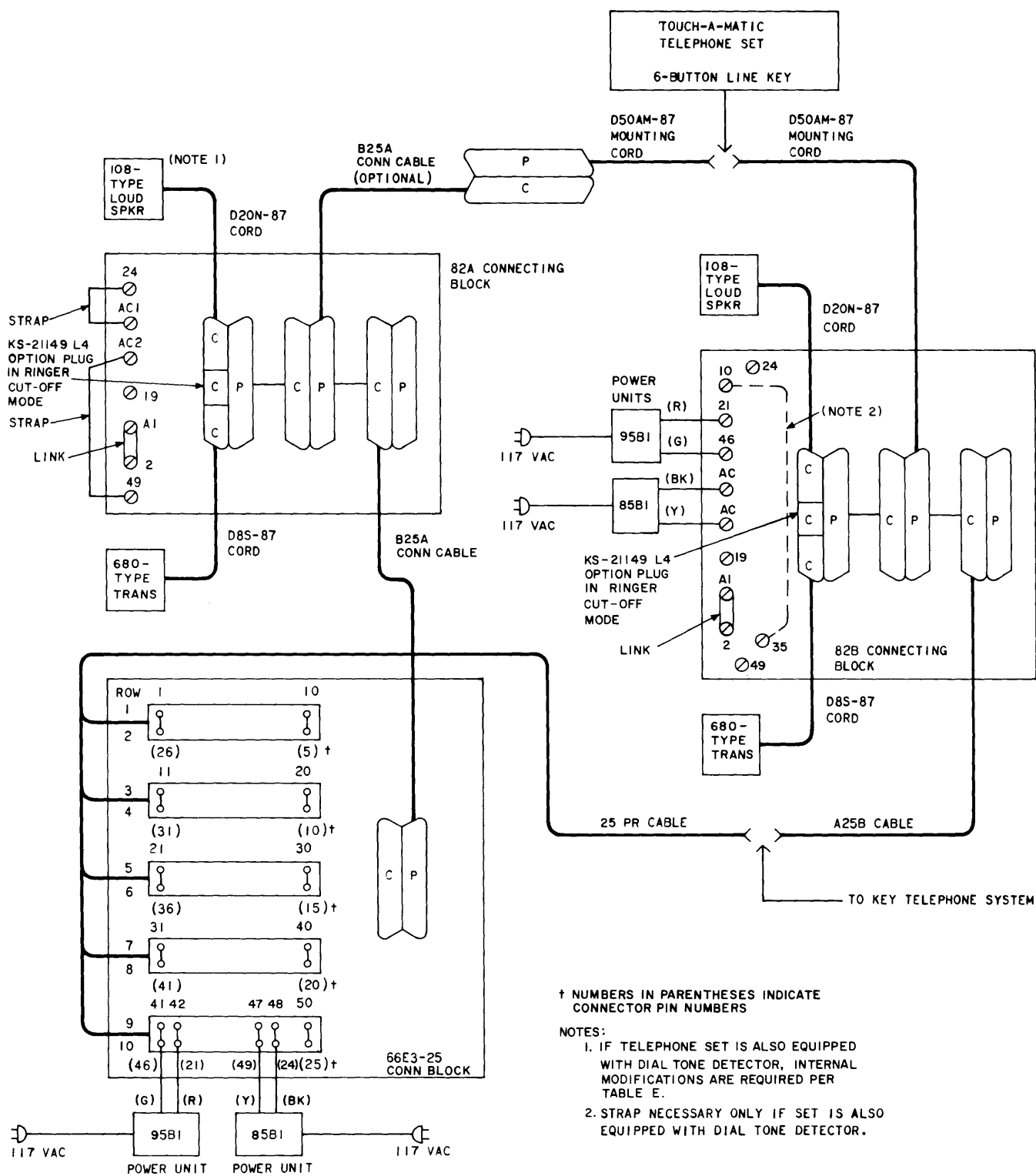
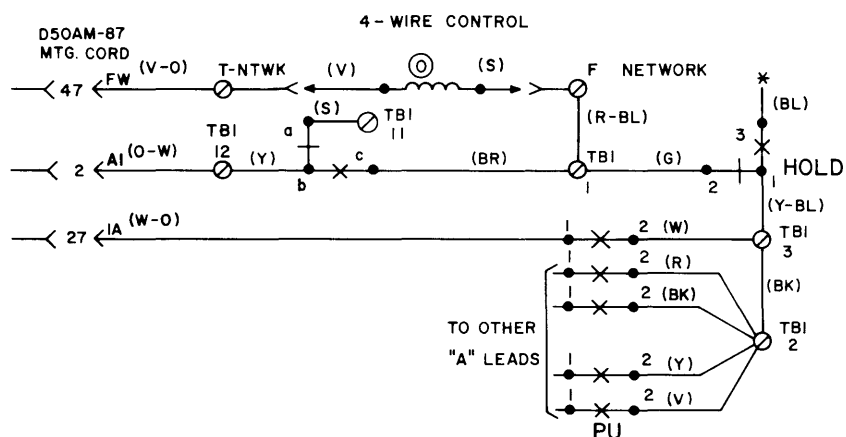
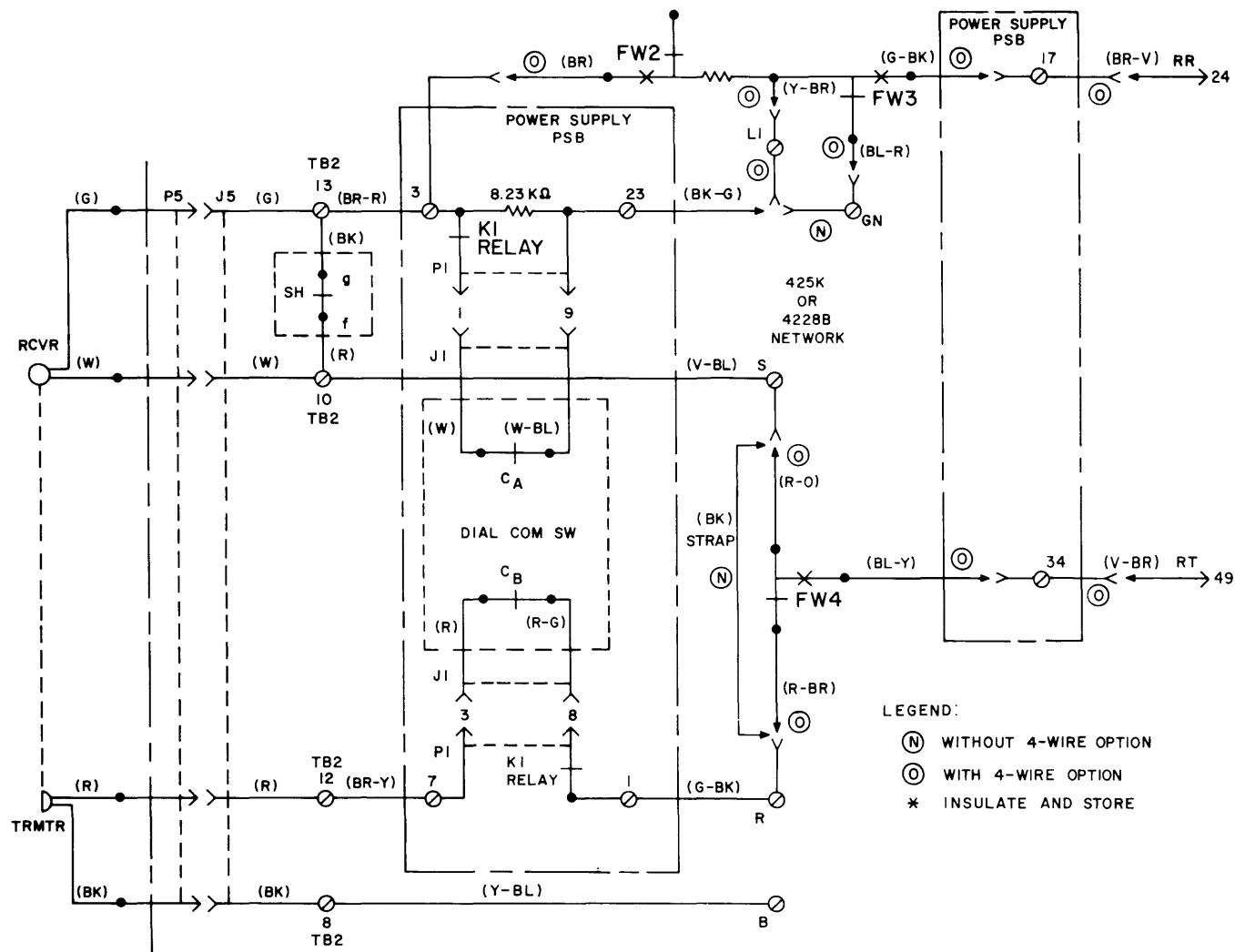


Fig. 11—Block Diagram—2872A1M or 2872A2M Telephone Set Using 4A Speakerphone (Alternate Methods of Installation)



**Fig. 12—2872A1M or 2872A2M Telephone Set—2/4 Wire Connections**

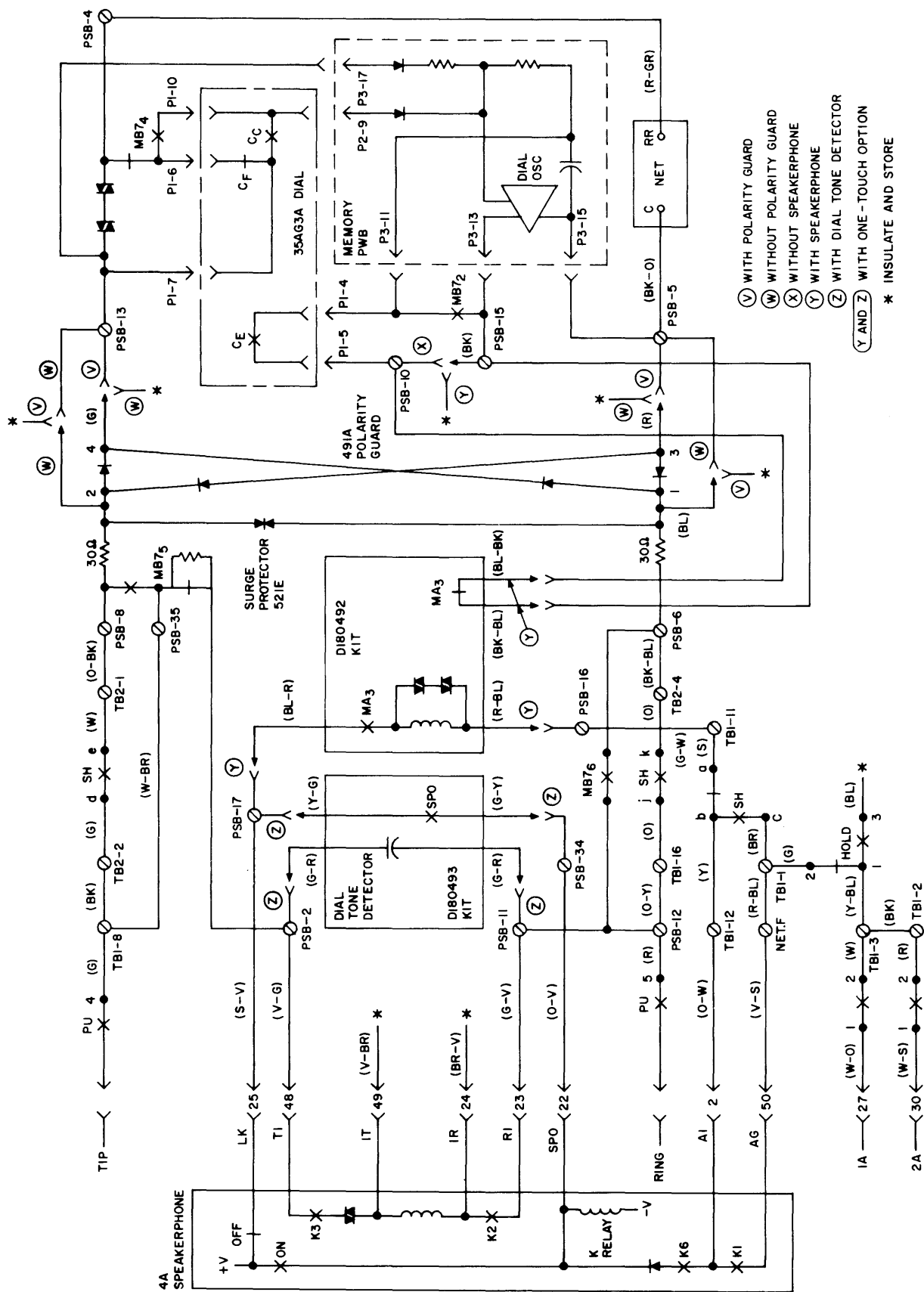


Fig. 13—2872A1M or 2872A2M Telephone Set, Partial Functional Schematic

**TABLE M**  
**TROUBLE ANALYSIS – 2872A1M OR 2872A2M**

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
1	Dead set on all lines	Line lamp does not come on when handset is taken off-hook	Mounting cord improperly inserted at equipment end	Check cord insertion and connections
		Line lamp comes on when handset is taken off-hook	Bad connection between handset and telephone set	1. Check handset cord connections 2. Check handset jack connections
			Defective receiver	Check handset
			Unknown	Replace telephone set
		Dial tone is not present when speakerphone is on	Open tip or ring lead at line key	Check leads and connections from contact strips
		Dial tone is present when speakerphone is on	Defective switchhook d-e or j-k contacts	Replace telephone set
2	Cannot transmit or receive when off-hook using handset	Line lamp comes on	Handset cord improperly inserted into handset or jack in telephone set	Check handset cord and/or handset
		Dial tone present, but sidetone absent. No audible TOUCH-TONE® signal	12-pin connector of dial not properly inserted on pins on power supply board	1. Check connector insertion 2. Replace dial
			Defective 616B jack	Replace 616B jack
			Defective network	Replace telephone set
3	Cannot manually dial when off-hook	Clicking sounds or damped TOUCH-TONE signals heard when dial buttons are depressed Cannot hang up set.	Bridged set off-hook	Place bridged set on-hook
		No audible TOUCH-TONE signal present	20-pin power supply connector not properly inserted on pins on memory PWB	Check connector insertion
			Dial connectors not properly inserted	1. Check connector insertion 2. Replace 35AG3A dial
			Defective memory PWB	Replace memory assembly
			Unknown	Replace telephone set
4	Cannot manually dial some digits when off-hook		Open or loose leads to dial contacts	Check for proper insertion of leads into 10-position dial connector
			Defective frequency contacts on dial	Replace dial

**TABLE M**  
**TROUBLE ANALYSIS – 2872A1M OR 2872A2M (Cont)**

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
4 (cont'd)			Defective memory PWB	Replace memory
			Unknown	Replace telephone set
5	Cannot manually dial off-hook for AC power failure condition	Can manually dial off-hook with AC power	Open strap lead between screw terminals 10 and 15 on PSB	Repair or replace strap lead
			Open path on PSB	Replace telephone set
6	RECORD lamp does not function properly	RECORD lamp does not turn on when RECORD button is depressed	AC power not present	Check for commercial power
			Battery not plugged in (2872A2M tel set)	Plug battery in
			95B1 power unit not plugged in or defective	Check or replace 95B1 power unit (should read 13.4 to 18 VAC across screw terminals 30 and 31 on PSB)
			Open in IW	Check IW and connections
			Memory, RECORD OFF or WAIT button stuck down	Clear stuck button
			Defective lamp or lamp driver circuit	Replace memory
			Defective logic reset switch on line key	Replace line key
			Unknown	Replace telephone set
		Lamp turns off when any memory button is depressed or Lamp does not momentarily turn off when a dial button is depressed	Defective logic	Replace memory
			Unknown	Replace telephone set
7	Cannot record into memory	RECORD lamp momentarily flashes when RECORD button is depressed	Stuck RECORD OFF button	Check RECORD OFF button
			WAIT contacts closed even when WAIT button is not depressed	1. Check WAIT button 2. Replace memory
8	Cannot record properly into the 31 memory positions or into the LAST NUMBER DIALED position	Warble tones heard when automatically dialing. Get "cannot complete" intercept for automatic or manual dialing	WAIT contacts closed even when WAIT button is not depressed	Replace memory
		Party is reached when number is recorded as it is manually dialed. However, when number is subsequently dialed from memory, party is not reached — wrong number is dialed from memory	Incorrect dial contact sequence	Replace dial
			Defective logic	Replace memory
			Open circuit on PSB	Replace telephone set



**TABLE M**  
**TROUBLE ANALYSIS – 2872A1M OR 2872A2M (Cont)**

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
9	Cannot dial properly from memory		Did not record properly	1. Record per 5.01 2. See No. 7
		MB7 relay does not operate (no clicking sound heard) when memory button is depressed. No audible TOUCH-TONE signal present	Battery not plugged in (2872A2M tel set)	Plug battery in
			Open circuit in power path	Check for proper strap lead connections on PSB. See Fig. 8 [B]
			Defective logic	Replace memory
			Defective switch-hook h-i contacts	Replace telephone set
		MB7 relay operates (clicking sound heard) but holds for less than 0.1 second for a 15 digit number	Incorrect dial sequence	Replace dial
		No audible TOUCH-TONE signal present		
		Audible gap in train of digits being dialed		
		Digits dialed too rapidly (fast dialer)	Noise on AC power line	1. Insert 145A filter between 95B1 power unit and commercial power outlet 2. Minimize wire length between 95B1 power unit and telephone set.
		No digits or random digits in memory	AC power outage for 24 hours or longer	Reestablish AC power and rerecord numbers into memory
			Disconnected or defective battery	1. Plug in the battery 2. Allow the battery to be charged for a minimum of 5 minutes. Then momentarily remove the 95B1 power unit from the AC power outlet and reinsert 3. If previously stored numbers are not dialed from memory, replace the battery 4. Repeat procedure
			Defective power supply circuit	Replace telephone set
		No digits or all the same digits in random memory locations	Defective memory	Replace memory
		Automatically dials through a "wait" after pausing momentarily at the "wait" space on a train of recorded digits	Defective WAIT contacts or defective circuit components	1. Replace memory 2. Replace dial tone detector PWB assembly of D-180493 Kit of Parts (if option is provided).

**TABLE M**  
**TROUBLE ANALYSIS – 2872A1M OR 2872A2M (Cont)**

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
10	Cannot manually dial off-hook for AC power failure condition  (Wired for speaker-phone option)	With a strap lead between screw terminals 10 and 15 on PSB, can manually dial off-hook for AC power failure condition	Defective circuit or connections on D-180492 Kit of Parts	1. Check connections per Table B, C, D, E, F, or G. 2. Replace D-180492 Kit of Parts
11	Cannot turn speakerphone on when ON button is depressed (Wired for speaker-phone option)	Speakerphone indicator lamp does not turn on, but line lamp is lit.	Handset off-hook	Place handset on-hook
		No dial tone heard, but indicator lamp turns on	Line button not depressed	Depress line button
		Speakerphone indicator lamp does not turn on and neither does line lamp	Improper connections or defective 85B1 power unit	1. Check connections per Table B, C, D, E, F, or G. 2. Check for commercial power 3. Check that 85B1 power unit is plugged into commercial AC power outlet 4. Check or replace 85B1 power unit (should read 18 to 25 VAC across secondary screw terminals)
		Speakerphone indicator lamp does not turn on but line lamp lights	Improper connections or defective 95B1 power unit	1. Check connections 2. Check or replace 95B1 power unit (should read 13.4 to 18 VAC across screw terminals 30 and 31 on PSB)
		With temporary strap lead added between power supply screw terminals 16 and 17, speakerphone turns on when ON button is depressed	Defective 327 A relay, MA3 relay or connecting leads on D-180492 Kit of Parts	Replace D-180492 Kit of Parts
		When temporary strap lead added between screw terminals 11 and 12 on TB1, speakerphone turns on when ON button is depressed	Defective switchhook a-b contacts or connecting lead to PSB	1. Check (G-W) harness lead between screw terminal 11 on TB1 and terminal 16 on PSB 2. Replace telephone set
			Defective speaker-phone	See appropriate speakerphone BSP
12	Cannot turn speakerphone off when handset is lifted off-hook (Wired for speakerphone option)	Speakerphone turns off when OFF button is depressed but turns back on when OFF button is released	Short circuit between screw terminals 11 and 12 on TB1	Clear short
			Defective switchhook a-b contacts	Replace telephone set

**TABLE M**  
**TROUBLE ANALYSIS – 2872A1M OR 2872A2M (Cont)**

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
13	RECORD lamp does not turn off when speakerphone ON button is depressed (Wired for speakerphone option)	Speakerphone indicator lamp does not turn on. Line lamp is lit	Handset off-hook	Place handset on-hook
		With temporary strap lead added between screw terminals 16 and 17 on power supply, speakerphone turns on when ON button is depressed and RECORD lamp goes off	LK relay circuit defective on D-180492 Kit of Parts	Replace D-180492 Kit of Parts
		Operation of RECORD OFF button or line key buttons turns RECORD lamp off	Defective switch-hook h-i contacts	Replace telephone set
14	Cannot break dial tone when dialing with speakerphone on (Wired for speakerphone option)	Cannot manually dial when off-hook	Refer to trouble number 3	Refer to trouble number 3
		When dial button is depressed, audible level of TOUCH-TONE signal is high on speakerphone	Defective muting circuit on PSB	Replace telephone set
15	Cannot hear tones when dialing with speakerphone on (Wired for speakerphone option)	With the speakerphone ON button depressed, the audible tone level is normal	Physical spacing between speakerphone loudspeaker and transmitter units is too close	See appropriate speakerphone BSP for proper placement of units
		Normal conversational level on speakerphone	Defective muting circuit on PSB	Replace telephone set
16	Cannot turn speakerphone off (Wired for one-touch option)	Speakerphone turns off when OFF button is depressed but turns on when OFF button is released	Black strap lead to PSB-27 was not insulated and stored	Remove the strap lead
		Speakerphone turns off and stays off when (Y-BL) lead is disconnected from terminal 27 on PSB and OFF button is depressed	Defective output logic level from memory PWB	Replace memory
		Speakerphone turns off when handset is taken off-hook but turns on when handset is placed on-hook	Defective circuit on D-180493 Kit of Parts	Replace dial tone detector board assembly of D-180493 Kit of Parts

**TABLE M**  
**TROUBLE ANALYSIS – 2872A1M OR 2872A2M (Cont)**

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
17	Speakerphone does not turn on when a memory button is momentarily depressed in the automatic dialing mode (Wired for one-touch option)	MB7 relay does not operate (no click heard) when memory button is depressed	Battery not plugged in	Plug battery in
		With temporary strap between screw terminals 28 and 29 on PSB, speakerphone turns on when a memory button is depressed	One-touch calling switch turned off or defective	1. Turn one-touch calling switch on 2. Replace one-touch calling switch assembly of D-180493 Kit of Parts
			Defective dial tone detector D-180493 Kit of Parts	Replace dial tone detector PWB assembly of D-180493 Kit of Parts
		With temporary strap between screw terminals 17 and 34 on PSB, speakerphone turns on when a memory button is depressed.	Defective connections between dial tone detector and PSB	Check (Y-G) and (G-Y) leads to PSB terminals 17 and 34, respectively
			Defective dial tone detector D-180493 Kit of Parts	Replace dial tone detector PWB assembly of D-180493 Kit of Parts
18	Delay time between depression of a memory button and initiation of automatic dialing exceeds 3 seconds (Wired for one-touch option)		Defective timing circuit	1. Replace memory 2. Replace dial tone detector PWB assembly of D-180493 Kit of Parts
19	Speakerphone turns on but set does not automatically dial when memory button is depressed (Wired for one-touch option)		Black strap leads were not lifted from PSB terminals 19 and 26 when option was wired	Insulate and store strap leads.
		Set dials when screw terminals 26 and 29 on PSB are temporarily shorted	Precise dial tone not present	1. Check CO line for presence of precise dial tone (350 Hz and 440 Hz) 2. If correct dial tone is present, replace dial tone detector PWB assembly of D-180493 Kit of Parts
		Set does not dial from memory when screw terminals 26 and 29 on PSB are temporarily shorted	Defective logic	Replace memory
20	Calls not completed if handset is quickly taken off-hook while automatically dialing on a speakerphone	Automatic dialing is terminated before all digits are dialed	Marginal switchhook sequence between a-b and h-i contacts	Remove handset more slowly from handset cradle

TABLE M  
TROUBLE ANALYSIS – 2872A1M OR 2872A2M (Cont)

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
21	Cannot dial properly from memory when on handset  (Wired with dial tone detector option)	MB7 relay does not operate (no click heard) when memory button is depressed.	Battery not plugged in (2872A2M tel set)	Plug battery in
			Precise TOUCH-TONE® dial tone may not be present	Make sure precise (350 Hz and 440 Hz) dial tone is present
			Loose memory mounting	Tighten memory mounting screws.
			Improper installation of dial tone detector, D-180493	Check connections for D-180493 installation
		Same as above— Addition of strap lead between PSB terminals 26 and 29 does not correct problem	Improper connection to or defective memory	1. Check connector cable 2. Replace memory
		Addition of strap lead between PSB terminals 26 and 29 corrects problem	Defective memory	Replace memory
			Defective dial tone detector	Replace D-180493 dial tone detector
			Unknown	Replace telephone set