872A1M TELEPHONE SET
(TOUCH-A-MATIC® SET)

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NOTICE

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1. GENERAL

1.01 This section contains identification, installation, connections, operation, and maintenance information on the 872A1M TOUCH-A-MATIC® telephone set (Fig. 1).

1.02 This section is reissued to:

- Add D-180818 Kit of Parts (Record Disable and Dial Intermix Feature)
- Show 872A1-87 faceplate MD
- Add 872B1 faceplate and 870A1U upper housing
- Revise Fig. 1 through 6, 8 through 12, and 14
- Add Fig. 7 and 13
- Revise Tables A through F, J, K, M, and N
- Add Tables G, H, I, and L.

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

1.03 The 872A1M telephone set is factory-wired for use with 1A1, 1A2, or 6A key telephone systems (KTS). It may be converted (Table K) for use with 1A KTS.

1.04 The telephone set is available in the following colors:

- Black (-03)
- Green (-51)
- White (-58)
- Lt. Beige (-60)

1.05 The 872A1 (MD) faceplate is available in only the satin-silver (-87) color.

1.06 The 872B1 decorative faceplates are available in the following colors:

- Teak Woodgrain (-108)
- Walnut Woodgrain (-109)
- Matte Aluminum (-122)

2. IDENTIFICATION

2.01 The 872A1M telephone set provides all standard features of a 6-button key telephone set plus 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 memory
- 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

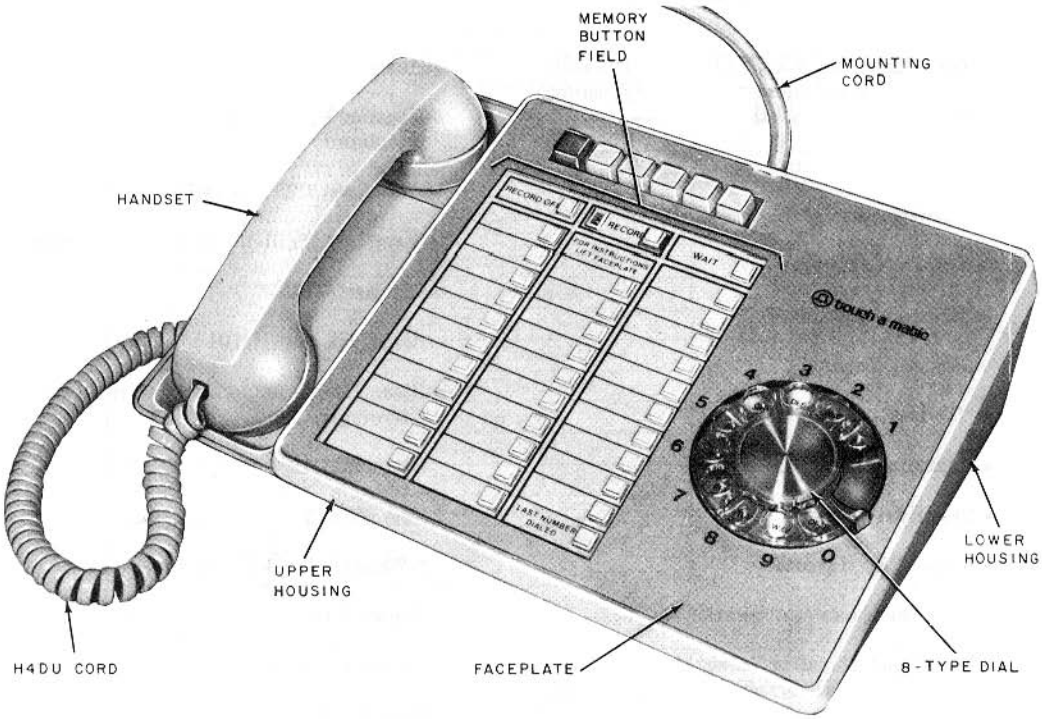


Fig. 1—872A1M Telephone Set

- Last number manually dialed memory
- Plug-in battery
- Capability to pause for subsequent dial tones during automatic dialing (WAIT input).

2.03 ***Optional Features (Refer to Table A):***

- Decorative Faceplate
- Speakerphone—either 3B or 4A speakerphone systems may be added to stations
- Dial Tone Detector—automatically starts dialer when precise TOUCH-TONE® dial tone (350 Hz and 440 Hz) is present.
- One-Touch Calling, (requires both dial tone detector and speakerphone)—despressing one memory button will automatically turn on speakerphone, detect dial tone, and dial complete number.

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.

- Record Disable—turns off the recording feature to prevent accidental erasures of previously stored numbers.
- Dial Intermix—same as record disable feature plus.

  (a) Allows digits dialed from manual dial and from memory to be intermixed

without having to depress the RECORD OFF button.

(b) Diables the LAST NUMBER DIALED feature, and allows that memory position to be used as any other one.

- Station Busy Lamp
- 2/4-Wire Service
- Add-On-Conference
- Exclusion (multiline)
- Bridged Ringing
- "I" Hold
- Signaling
- Restricted Dialing
- Amplifying Handset
- Head telephone set operation
- End-to-end signaling using 1035C3A (MD) or 1035AF3A Dial Adjunct (Section 501-164-130).

2.04 ***All options are implemented by:***

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

2.05 ***Ordering Guide:***

(a) The 872A1M telephone set is a modular type telephone set and may be ordered complete and ready to install as.

- Set, Telephone, 872A1M-*.

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

- Unit, Power, 95B1 or 95B2 (required for operation of the automatic dialing feature.

Note: A 95B-type power unit is required for each telephone set.

(c) The 872A1M set is comprised of the following component parts:

- Housing, 870A1-*
- Housing, Upper, 870A1U-* (used with 872B1 faceplate)
- Faceplate, 872A1-87 (MD)
- Faceplate, 872B1-122 (matte aluminum)
- Handset, G15A-*
- Cord, Handset, H4DU-*
- Base, Telephone Set, 872AM (includes the following):

  Dial, 8EA-119

  Key, 635BT5

  812365039 (P-23F503) Collar

  Ringer, P1B

  Network, 425K or 4228-type

  Buzzer, KS-20419L1

  Cord, Mounting, D50BB-87

  Battery, KS-20390L4 or KS-20390L2

  Jack, Handset, 616B

  Memory, 870B (includes button field)

  841382617 Power Supply Printed Wiring Board (PSB) Assembly

  840393672 Directory Sheet Set

  Booklet, Instruction, Subscriber, SIB-2455B

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

- Kit of Parts, D-180568 (must be used for speakerphone service)
- Kit of Parts, D-180493 (Dial Tone Detector and One-Touch Calling switch)

TABLE A

OPTIONS

OPTION		ADDITIONAL ITEMS REQUIRED	CONNECTION PER	
			FIGURE	TABLE
Speakerphone*	4A	108-Type Loudspeaker	11	D,E
		680-Type Transmitter	11	D,E
		82B Connecting Block	11	D,E
		85B1 Power Unit	11	D,E
		D-180568 Kit of Parts	8(C)	D,E
	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-180568 Kit of Parts	8(C)	B,C
One-Touch Calling		D-180493 Kit of Parts	8(D,E)	C or E
		Speakerphone	8(B)	
Dial Tone Detector		D-180493 Kit of Parts	8(D)	C,E, or F
Station Busy Lamp			9	
"I" Hold			9	
Signaling				M
Exclusion (Multiline)			9	
Add-On-Conference			9	
Bridged Ringing				H,I
2/4 Wire Service*		D-180494 Kit of Parts	12	G
1A Key Service				K
Amplifying Handset		G6-, G7-, or G8-Type Handset	8(H)	
Restricted Dialing		446F Diode	13	
Record Disable		D-180818 Kit of Parts (See Note)		L
Dial Intermix				
Decorative Faceplate		872B1-108 (Teak)†		
		872B1-109 (Walnut)†		
Head Telephone Set Operation		Plantronics Jack Set Model JS180-1 or JS180-2	Tables provided for Plantronics Jack Set	
		Desired Head Telephone Set		

* D-Kits for 2/4 wire service and speakerphone are designed to mount in the same place in the set. If both services are to be provided simultaneously, consult your Telco engineer.

† An 870A1U upper housing may be required (6.11).

Note: If set is equipped with an 870A memory, an 870B memory will also be required.

- Kit of Parts, D-180494 (for conversion to 4-wire service)

- Kit of Parts, D-180818 (Record Disable and Dial Intermix)

Note: This kit of parts may be used only with sets equipped with an 870B Memory.

- Faceplate, 872B1-*

Note: If set is equipped with an 872A1-87 faceplate, then an upper housing (870A1U-*) of the appropriate color must also be ordered.

- Set, Head Telephone [using Plantronics Jackset Model JS180-1 (2 foot cord) or JS180-2 (7 foot cord)]

* Add appropriate color suffix (1.04 or 1.06)

2.06 ***Operating Features (Fig. 2).***

- 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 array, 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 complete. 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 into the mating jack.

Note: Wire date of installation on label provided on battery.

3.03 Install the 95B-type 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). A retaining clamp (841050818) will be shipped with the 95B-type power unit and should be mounted to the ac receptacle to hold power unit securely and prevent accidental loss of power. 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 cord and connected to PSB terminals 24 and 25. When separate power conductors are used, disconnect, insulate, and store the (BL-V) and V-BL) mounting cord leads from PSB terminals 24 and 25.

Danger: Securely attach retaining clamp to ac outlet using outlet cover screw BEFORE attempting to install 95B-type power unit. When removing power unit, always unplug it completely from the outlet BEFORE attempting to remove the retaining clamp. This will prevent the possibility of a loosened retainer clamp or metallic outlet cover making contact with the ac prongs of the power unit when partially

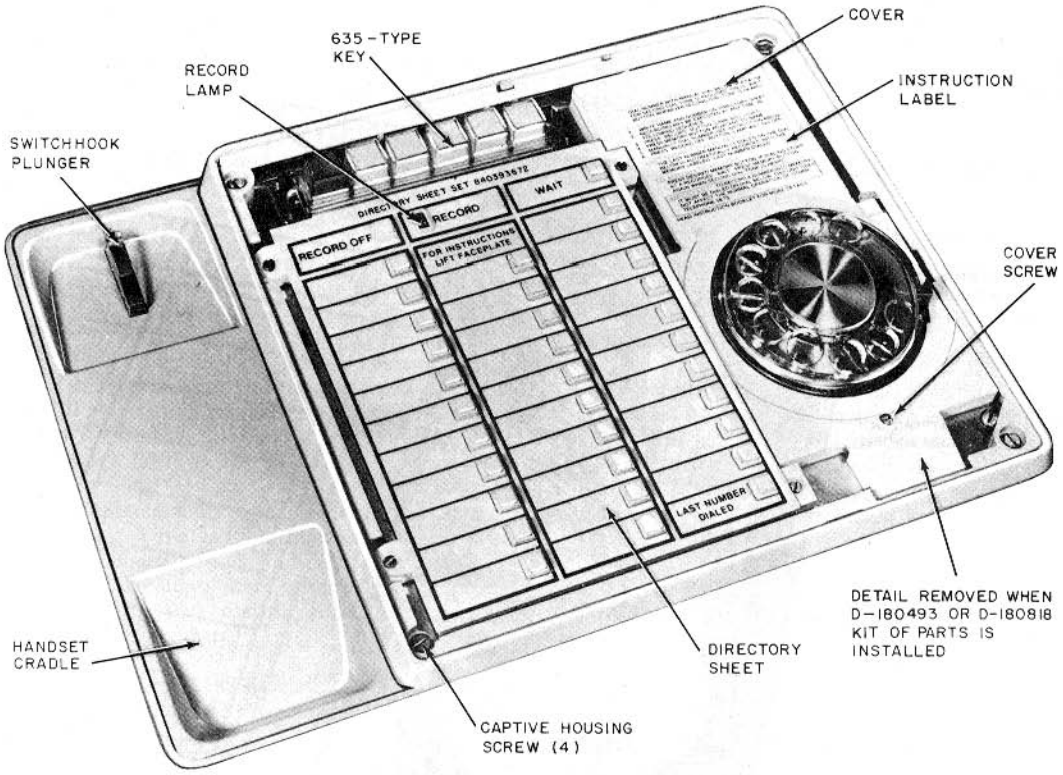


Fig. 2—872A1M Telephone Set—Faceplate and Handset Removed

withdrawn from outlet. Do not use 841050818 or similar retaining clamps on outlets where the cover mounting screw holds the duplex outlet in the box.

Note: The 95B-type 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 shall be placed in the plastic fingerwheel of the dial. The silver disc provided with the dial shall be retained under the number card.

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 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.

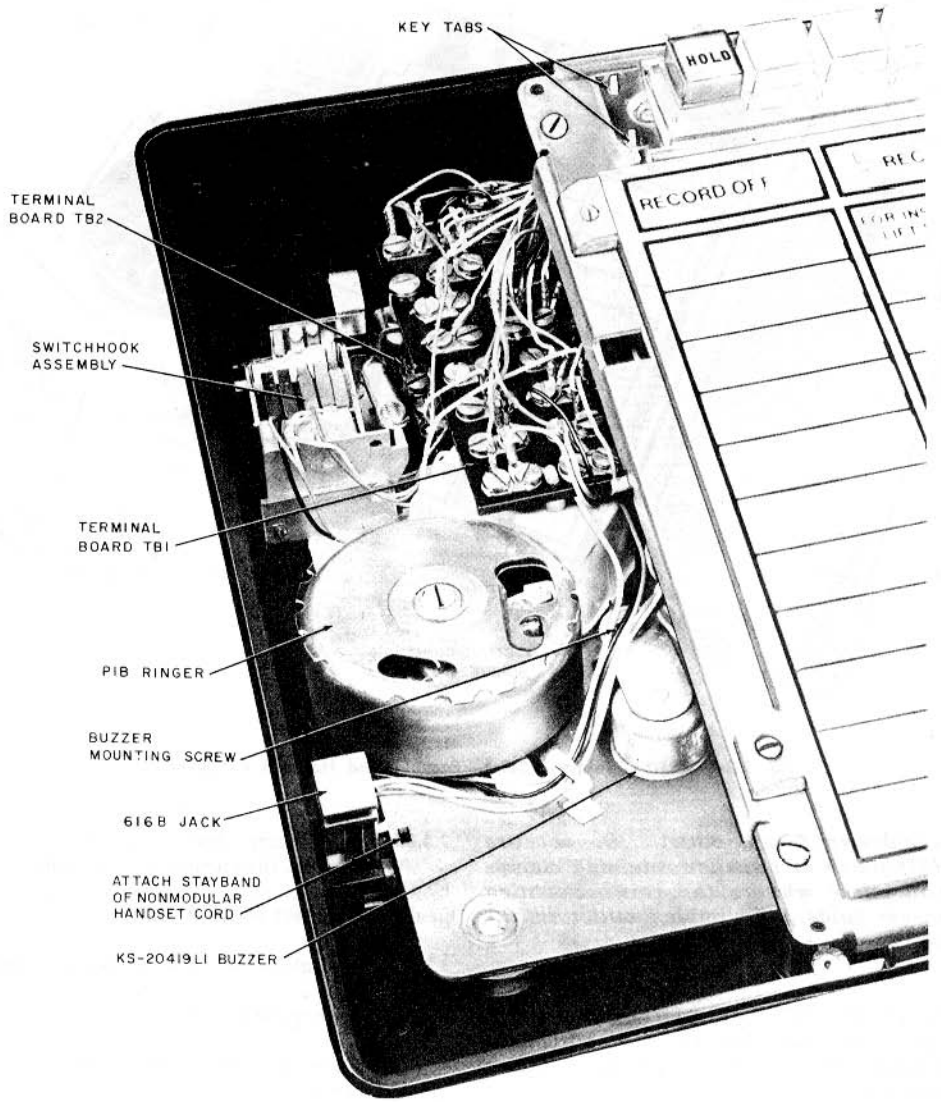


Fig. 3—872A1M Telephone Set With Faceplate, Upper Housing, Handset, and Handset Cradle Removed

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 Table N, Trouble Analysis.

(1) Disconnect the power unit and manually dial a known telephone number to check that the telephone operates correctly in the absence of commercial power.

(2) Reconnect the power unit to ac outlet.

(3) With the handset on-hook, record known telephone numbers, storing consecutive digits of the numbers in sequential memory locations. Fill all memory locations except LAST NUMBER DIALED and location immediately above it [5.01(4) through (7)].

(4) Automatically dial the telephone numbers stored in Step (3) by momentarily depressing the memory buttons in the same sequence in which the digits were recorded. Verify that the digits thus dialed produce the expected telephone numbers.

(5) Go off-hook and simultaneously manually dial and record a known telephone number into memory location immediately above LAST NUMBER DIALED button [5.01 (4) through (7)].

(6) Momentarily hang up handset and then automatically dial the number recorded in Step (5).

(7) Go off-hook and manually dial a known telephone number with a WAIT input inserted in the telephone number.

(8) Momentarily hang up the handset and then automatically dial the number by depressing the LAST NUMBER DIALED button. The set should stop dialing when it reaches the stored WAIT input. Depress the LAST NUMBER DIALED button again and the remaining digits should be dialed.

The battery and power unit must be connected a minimum of five minutes before doing Step (9).

(9) Momentarily disconnect the power unit (for 5 to 10 seconds). After reconnecting power unit, momentarily depress memory buttons in same sequence in which digits were recorded in Step (3). Verify that the correct telephone numbers are dialed.

(10) Dial the appropriate code for ring-back to test the ringer.

(11) Check operation of the logic reset switch by pressing the RECORD button (RECORD lamp will come on) and subsequently pressing an unoperated line button. (RECORD lamp must go out.)

(12) If equipped with one-touch calling option, (D-180493 Kit of Parts and speakerphone), and with set in on-hook condition, depress the memory button used in Step (5). The speakerphone should turn on, dial tone should be detected, and the stored number should be automatically dialed.

OPTIONAL APPARATUS INSTALLATION

D-180568 Kit of Parts (Speakerphone)

3.08 To install.

(1) Proceed as described in 3.17.

(2) Make connections per one of the appropriate Tables, B through E.

(3) Mount the kit assembly to the chassis with the screws provided (Fig. 4). Beveled corner of printed wiring board (PWB) should be at lower right corner.

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

3.09 To install.

(1) Remove the housing (3.21), and access PSB terminal board (3.17).

(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.

TABLE B

CONNECTIONS – 872A1M TELEPHONE SET WITH 3B SPEAKERPHONE

APPARATUS	LEAD		872A1M TEL. SET (NOTE 1)		CONNECT		
					FROM		TO
	DESIG	COLOR	FROM	TO PSB TERM.	CONT UNIT 55A	CONT UNIT 55B	149B ADPT (DIOR CORD) TERM.
872A1M Tel Set	T1	V-G	*	2	19	1	8A
	R1	G-V	*	9	28	10	7A
	A1				12	2	A1
	AG	V-S	*	F†	5	11	12A
	LK	S-V	*	13	11	35	11A
	P3	V-BR	*	3	21	4	10A
	P4	BR-V	*	6	30	13	9A
	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-180568 Kit of Parts	LK	BL-R		13			
	SHi	G-W		14			
	SHa	R-BL		16			
	VDD	W-G		17			
666B TRMTR (T7A Cord)	M1	S-BK			4	7	
	P1	BL-R			13	8	
	−15V	BK-S			14	16	
	S	O-BK			3	18	
	A1	Y-O			29	19	
	F1	G-Y			2	17	
	LK	BK-O			11	35	
760A Lspk (R2FK Cord)	SP1	G			34	20	
	SP2	R			33‡	29‡	
95B1 Pwr Unit	AC1						3B§
	AC2						4B§
2012B Trnsf	AC1				27	27	
	AC2				36	36	

*Insulated and stored.
†Terminal on network.
‡To reduce loudspeaker volume, move SP2 lead to terminal 24(55A) or 30(55B).
§Insulate and store (BL-V) and (V-BL) leads in connector cable.
Note: Plug telephone set mounting cord into 149B adapter.

TABLE C

CONNECTIONS – 872A1M TELEPHONE SET WITH ONE-TOUCH CALLING USING 3B SPEAKERPHONE

APPARATUS	LEAD		872A1M TEL SET (NOTE 1)		CONNECT			CONN CABLE AT KEY EQUIP.	
					FROM		TO		
	DESIG	COLOR	FROM	TO PSB TERM.	CONT UNIT 55A	CONT UNIT 55B	149B ADPT (DIOR CORD) TERM.	COLOR	TO
872A1M Tel Set	T1	V-G	*	2	19	1	8A		
	R1	G-V	*	9	28	10	7A		
	A1				12	2	A1		
	AG	V-S	*	F†	5	11	12A		
	LK	S-V	*	13	11	35	11A		
	SPO	O-V	*	21	3	18	5B	O-V	*
	P3	V-BR	*	3	21	4	10A		
	P4	BR-V	*	6	30	13	9A		
	R or R1				18	34	1B		
	R or R1				9	25	1A		
	B or B1				17	33	2B		
	B or B1				8	24	2A		
	STRAP	BK	PSB-11	*					
	STRAP	BK	PSB-18	*					
	STRAP	BK	PSB-23	*					
D-180493 Kit of Parts (Note 2)	INPUT	G-R		2					
	PB	O-BK		7					
	INPUT	G-R		9					
	DT	O-Y		11					
	LK	Y-G		13					
	VDD	R-O		17					
	SPR	Y-BL		18					
	DR	Y-O		19					
	COM	BK-O		20					
	SPO	G-Y		21					
	PL	O-R		22					
	DTT	BL-Y		23					
	Switch	S		15					
		S		20					
D-180568 Kit of Parts	LK	BL-R		13					
	SHi	G-W		14					
	SHa	R-BL		16					
	VDD	W-G		17					

TABLE C (Cont)

CONNECTIONS – 872A1M TELEPHONE SET WITH ONE-TOUCH CALLING USING 3B SPEAKERPHONE

APPARATUS	LEAD		872A1M TEL SET (NOTE 1)		CONNECT				
					FROM		TO	CONN CABLE AT KEY EQUIP.	
	DESIG	COLOR	FROM	TO PSB TERM.	CONT UNIT 55A	CONT UNIT 55B	149B ADPT (DIOR CORD) TERM.	COLOR	TO
666B Trans (T7A Cord)	M1	S-BK			4	7			
	P1	BL-R			13	8			
	−15V	BK-S			14	16			
	S	O-BK			3	18			
	A1	Y-O			29	19			
	F1	G-Y			2	17			
	LK	BK-O			11	35			
760A Lspk (R2FK Cord)	SP1	G			34	20			
	SP2	R			33‡	29‡			
95B1 Pwr Unit	AC1						3B	BL-V	*
	AC2						4B	V-BL	*
2012B Trnsf	AC1				27	27			
	AC2				36	36			

*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. All dial tones encountered in the process of placing a call must be precise TOUCH-TONE dial tone.

(3) Lock the board into position by inserting the self-threading screw through the right side of the chassis.

(4) Mount the one-touch calling switch below the dial with the two screws provided.

Note: If switch for D-180818 Kit of Parts is already present, the one-touch calling switch can not be installed. The PSB terminals to which the switch leads are normally connected (Table C or E), shall be strapped together. (The one-touch calling option can not be turned off by the subscriber.)

(5) Make connections per Table C, E, or F.

(6) Break off the detail at the bottom of the cover (Fig. 2) and trim edge as required.

(7) Verify correct operation of option.

(8) Reassemble set.

D-180494 Kit of Parts (2/4-Wire Service)

3.10 To install.

(1) Proceed as described in 3.17.

(2) Make connections per Table G.

(3) Mount the kit assembly to the chassis with the screws provided (Fig. 4).

D-180818 Kit of Parts (Record Disable and Dial Intermix Features)

3.11 To install.

TABLE D

CONNECTIONS – 872A1M TELEPHONE SET WITH 4A SPEAKERPHONE

APPARATUS		LEAD DESIG.	LEAD COLOR	872A1M TEL SET FROM	872A1M TEL SET TO PSB TERM.	82B CONN BLK (NOTE 1)	CONN CABLE AT KEY EQUIP COLOR	CONN CABLE AT KEY EQUIP TO
872A1M Tel Set		T1	V-G	*	2			
		R1	G-V	*	9			
		A1				(Note 2)		
		AG	V-S	*	F†			
		LK	S-V	*	13			
		P3	V-BR	*	3			
		P4	BR-V	*	6			
D-180568 Kit of Parts		LK	BL-R		13			
		SHi	G-W		14			
		SHa	R-BL		16			
		VDD	W-G		17			
‡	85B1 POWER UNIT	AC1	BK			AC1		
		AC2	Y			AC2		
	95B-TYPE POWER UNIT	AC1	R			21	BL-V	*
		AC2	G			46	V-BL	*
§	85B1 POWER UNIT	AC1				Strap AC1 to 24	BR-V	AC1
		AC2				Strap AC2 to 49	V-BR	AC2
	95B-TYPE POWER UNIT	AC1					BL-V	AC1
		AC2					V-BL	AC2

*Insulated and stored.
†Terminal on network.
‡Preferred power connections.
§Alternate power connections.

Notes:

1. Plug mounting cords of telephone set, 108-type loudspeaker, and 680-type 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.

(1) Remove faceplate (3.19).

(2) Loosen the captive screw at the bottom of the cover around the dial and remove the cover.

(3) Disengage the four captive memory mounting screws (Fig. 4).

(4) Remove the two dial mounting screws and move dial aside.

(5) Rotate left edge of memory upward as shown by Fig. 5.

Note: If set is equipped with an 870A memory, replace it with 870B memory, and carefully pack and return the old memory according to local procedures.

TABLE E

CONNECTIONS – 872A1M TELEPHONE SET WITH ONE-TOUCH CALLING USING 4A SPEAKERPHONE

APPARATUS	LEAD		872A1M TEL SET		82B CONN BLK (NOTE 1)	CONN CABLE AT KEY EQUIP.	
	DESIG	COLOR	FROM	TO PSB TERM		COLOR	TO
872A1M Tel Set	T1	V-G	*	2			
	R1	G-V	*	9			
	A1				(Note 2)		
	AG	V-S	*	F†			
	LK	S-V	*	13			
	SPO	O-V	*	21	Strap 10 to 35	O-V	*
	P3	V-BR	*	3			
	P4	BR-V	*	6			
D-180493 Kit of Parts (Note 3) (Note 4)	Input	G-R		2			
	PB	O-BK		7			
	Input	G-R		9			
	DT	O-Y		11			
	LK	Y-G		13			
	VDD	R-O		17			
	SPR	Y-BL		18			
	DR	Y-O		19			
	COM	BK-O		20			
	SPO	G-Y		21			
	PL	O-R		22			
	DTT	BL-Y		23			
	Switch	S		15			
		S		20			
D-180568 Kit of Parts	LK	BL-R		13			
	SHi	G-W		14			
	SHa	R-BL		16			
	VDD	W-G		17			
‡ 85B1 PWR UNIT	AC1	BK			AC1		
	AC2	Y			AC2		
‡ 95B-TYPE PWR UNIT	AC1	R			21	BL-V	*
	AC2	G			46	V-BL	*

TABLE E (Contd)

CONNECTIONS – 872A1M TELEPHONE SET WITH ONE-TOUCH CALLING USING 4A SPEAKERPHONE

	APPARATUS	LEAD		872A1M TEL SET		82B CONN. BLK (NOTE 1)	CONN CABLE AT KEY EQUIP.	
		DESIG	COLOR	FROM	TO PSB TERM		COLOR	TO
§	85B1 PWR UNIT	AC1				Strap 24-AC1	BR-V	AC1
		AC2				Strap 49-AC2	V-BR	AC2
	95B-TYPE PWR UNIT	AC1					BL-V	AC1
		AC2					V-BL	AC2

* Insulated and stored.

† Terminal on network

‡ Perferred power connections.

§ Alternate power connections.

Notes:

1. Plug mounting cords of telephone set, 108-type loudspeaker, and 680-type 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. Remove (BK) strap leads between PSB terminals 11 and 17; 17 and 23; and 18 and 20.
4. All dial tones encountered in placing a call must be precise TOUCH-TONE dial tone.

(6) Mount switch below dial using the two screws provided.

Note: If the one-touch calling switch (D-180493 Kit of Parts) is already present, it must be removed. The PSB terminals to which the switch leads were connected (Table C or E), must be strapped together. (The one-touch calling option can no longer be turned off by the subscriber.)

(7) Connect switch lead connectors to post terminals on memory board per Table L.

(8) With feature switch in OFF position, verify that set operates in normal manner.

- Numbers can be recorded into memory
- Numbers can be changed
- Numbers can be deleted from memory.

(9) Set feature switch to ON position and verify feature provided.

- Record disable feature, only.

TABLE F

CONNECTIONS – 872A1M TELEPHONE SET
WITH DIAL TONE DETECTOR ONLY (SEE NOTE)

APPARATUS	LEAD		872A1M TEL SET	
	DESIG	COLOR	FROM PSB TERM.	TO PSB TERM.
872A1M Tel Set	Strap	BK	11	*
	Strap	BK	23	*
D-180493 Kit of Parts	Input	G-R		2
	PB	O-BK		7
	Input	G-R		9
	DT	O-Y		11
	LK	Y-G		*
	VDD	R-O		17
	SPR	Y-BL		*
	DR	Y-O		19
	COM	BK-O		20
	SPO	G-Y		*
	PL	O-R		22
	DTT	BL-Y		23
	Switch †	S		*
		S		*

*Insulate and store.

†Switch not required when speakerphone is not provided.

Note: May be used for applications where first dial tone is not precise (350 Hz and 440 Hz) but all subsequent dial tones must be precise if number is to be dialed automatically.

(a) RECORD lamp will not light when RECORD button is depressed.

(b) No telephone numbers can be recorded, changed, or deleted in memory.

(c) LAST NUMBER DIALED feature is operative.

- Record disable and dial intermix features.

(a) RECORD lamp will not light when RECORD button is depressed.

(b) No telephone numbers can be recorded, changed, or deleted in memory.

(c) LAST NUMBER DIALED feature is disabled.

(d) Manually and automatically dialed digits may be intermixed.

(10) Reassemble set

Single-Line Service

3.12 The 872A1M-type TOUCH-A-MATIC telephone set is available from the factory as a single line set. However, with the addition of an 870B1 faceplate, the 872A1M telephone set may be converted to single line service as follows.

(1) Remove the faceplate, key collar, and all buttons of the 635-type key.

(2) Gain access to terminal area (3.17).

(3) Remove the cradle (3.20).

TABLE G

CONNECTIONS FOR 2/4-WIRE SERVICE

APPARATUS	COLOR	REMOVE FROM	CONNECT TO
872A1M Tel Set	BK-G	GN	L1
	BK	R	*
	BR-V	*	PSB-13
	V-BR	*	PSB-21
D-180494 Kit of Parts	V		T
	S		F
	BR		*
	Y-BR		L1
	BL-R		GN
	G-BK		PSB-13
	R-BR		R
	R-O		S
	BL-Y		PSB-21

*Insulate and store.

TABLE H

CONNECTIONS FOR CONVERSION TO SINGLE LINE SERVICE WITH BRIDGED RINGING

LEAD		REMOVE FROM	CONNECT TO
DESIG	COLOR		
Tip	W-BL	* (1 PU-3)	Net. K
Ring	BL-W	* (1 PU-6)	TB1-13
B1	Y-S	Net. K	*
R1	S-Y	TB1-13	*
A-Lead	W-O	* (1 PU-1)	TB1-1
Hold	Y-BL	TB1-3	*
LRS-1	W	PSB-20	*

*Insulate and store.

TABLE I

CONVERSION TO BRIDGED RINGING ON FIRST LINE WITH 6-BUTTON KEY SERVICE

LEAD		REMOVE FROM	CONNECT TO
DESIG	COLOR		
Tip	W-BL	(1 PU-3)*	Net. K
Ring	BL-W	(1 PU-6)*	TB1-13
B1	Y-S	Net. K	*
R1	S-Y	TB1-13	*

*Insulate and store.

(4) Make connections per Table H.

(5) Reassemble set and install an 870B1 faceplate of the appropriate color.

Note: If set was originally equipped with an 872A1-87 faceplate, refer to 6.11.

Head Telephone Set

3.13 To install.

(1) Remove housing (3.21).

(2) Access PSB terminal area (3.17).

(3) Remove cradle (3.20).

(4) Thread jack set cord through hole in rear of housing and make connections per appropriate table provided for Plantronics Jackset.

(5) Reassemble telephone set.

(6) Insert head telephone set plug into jack set.

Other optional components may be used such as SPOKESMAN®, loudspeaker sets, etc. Refer to the appropriate section for connection information for these components.

COMPONENT LOCATION AND ACCESS INFORMATION

Location of Components

3.14 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)
- Power supply board (PSB) terminal area (Fig. 4)
- Network (Fig. 4)
- Options (Fig. 4):

D-180568 (relay kit for speakerphone)

D-180493 (dial tone detector and one-touch calling switch kit)

D-180494 (2/4-wire relay kit)

D-180818 (record disable and dial intermix switch).

(c) Under the telephone set (Fig. 6):

- Battery.

Mounting Cord

3.15 The D50BB-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 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.

> ***Note:*** Sets manufactured prior to fourth quarter 1976 were equipped with D50AM-87 mounting cords. The major difference in the cords is that TIP and RING contact strips were required with the D50AM-87, whereas individual conductors of the D50BB-87 connect to the TIP and RING contacts of the 635-type key.

Network Terminals

3.16 For access to the network terminals.

(1) Remove the faceplate (3.19).

(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 Board (PSB) Terminals

3.17 To access the terminal field on the power supply board, proceed as follows.

(1) Remove the faceplate (3.19).

(2) Loosen the captive cover screw at the bottom of the white cover around the dial (Fig. 2).

(3) Remove the cover.

(4) Remove the two screws that hold the dial in place.

(5) Gently raise the dial and move aside.

(6) To reassemble; reverse procedure.

(7) 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.

Line Key Removal

3.18 To remove, use the following procedure.

(1) Remove faceplate (3.19).

(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 the right side

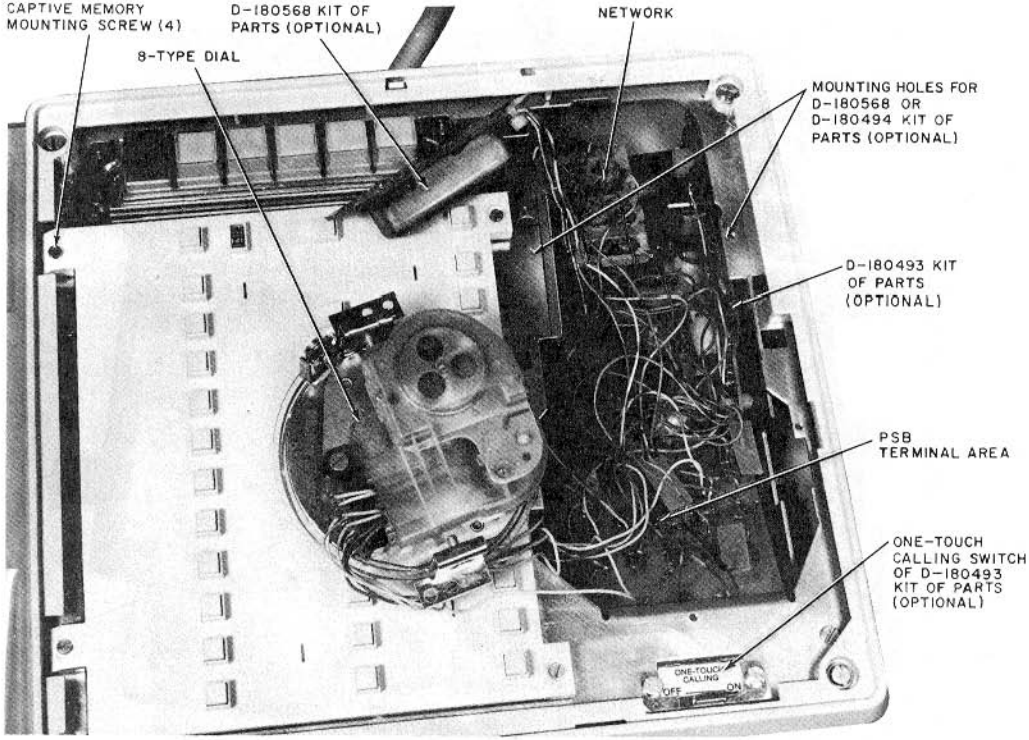


Fig. 4—872A1M Telephone Set—Dial Removed To Show Terminal Area

of the key or logic reset switch attached on HOLD side of key. (These contact strips will only be found on sets equipped with D50AM-87 mounting cords.)

(4) Lift the key completely out of the set.

(5) Replace key by reverse procedure.

Faceplate Removal

3.19 Removal will differ depending on faceplate provided.

(a) The 872B1-type faceplate is held in place by a spring clip attached to the 870A1U upper housing. To disengage the faceplate, lift up on the tab which protrudes from the center of the back edge of the faceplate.

Note: The 872B1 faceplate is not a direct replacement for the 872A1-87 faceplate. An 870A1U upper housing is also required with the 872B1 faceplate (6.11).

(b) The 872A1-87 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

3.20 To remove the handset cradle from the housing, proceed as follows.

(1) Remove the faceplate (3.19), and place the handset aside.

(2) Remove upper housing, if provided, [3.21(b)].

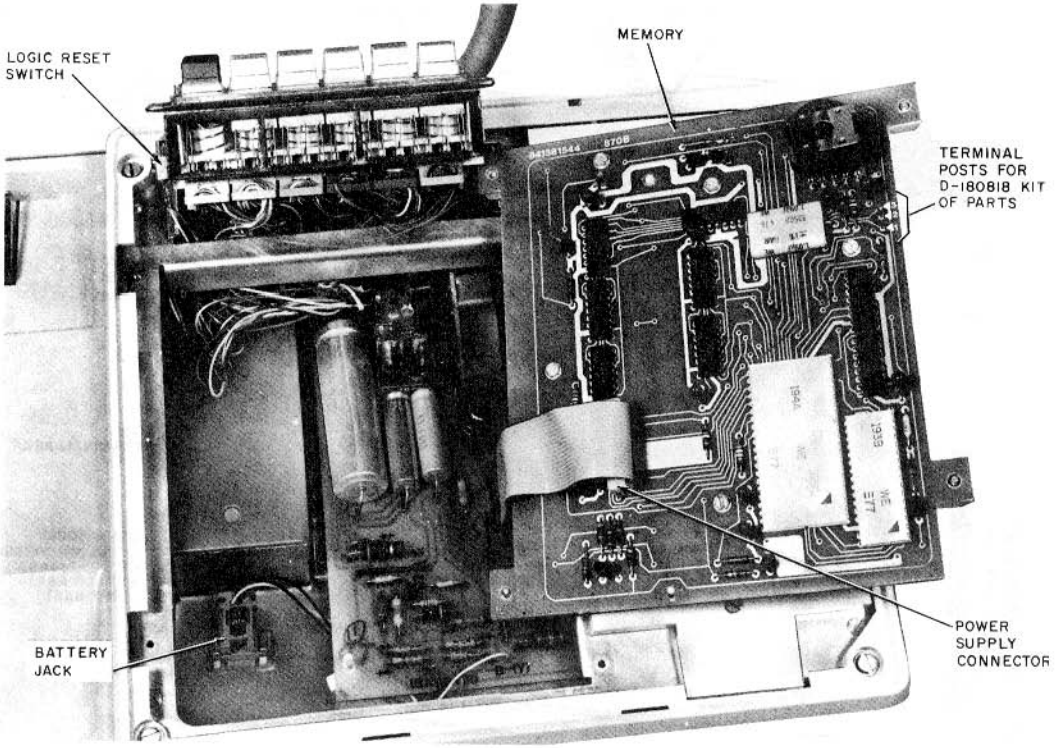


Fig. 5—872A1M Telephone Set, Overall Internal View

(3) Disengage the captive cradle screws located in the two tabs on the cradle (Fig. 2).

(4) Lift the cradle by pulling up on the plunger, and remove.

(5) 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 top side of the cradle as it is slid into position to prevent damage to the switchhook arm.

(6) Refasten the captive cradle screws.

Housing Removal

3.21 To remove, proceed as follows.

(a) ***Lower housing.***

(1) Unplug the handset cord, at the telephone set end, and remove handset.

(2) Remove the faceplate (3.19).

(3) Remove the handset cradle (3.20).

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

(4) Disengage the four captive housing screws, (Fig. 2), one located in each corner of the upper housing.

(5) Separate the housing from the telephone set base.

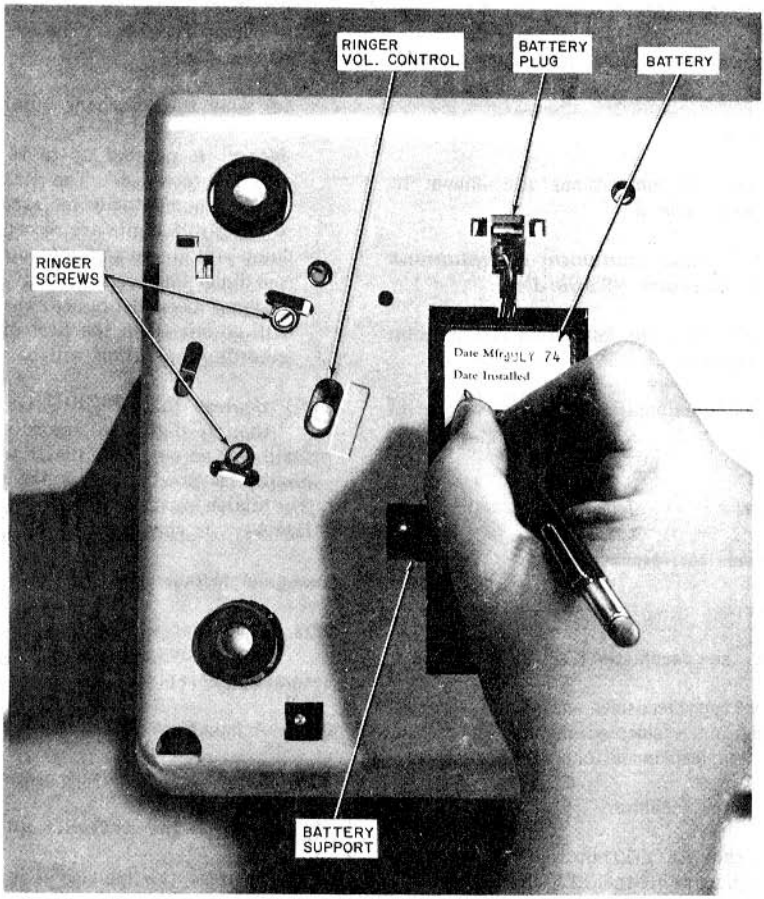


Fig. 6—872A1M Telephone Set, Bottom View

(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 of 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 chassis

(b) ***Upper housing.***

(1) Remove the faceplate (3.19).

(2) Disengage the captive housing screws located in each corner of the upper housing, (Fig. 2). This will release the lower housing.

(3) Pull the upper housing away from the chassis as each housing screw is backed out. This will separate the upper housing from the chassis.

(4) If necessary, thread screws out of housing.

(5) To reasemble, reverse procedure.

4. CONNECTIONS

4.01 Telephone set connections are shown in Fig. 8 and Table J.

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

4.02 Refer to Table A for connection information for all options.

4.03 A partial functional schematic is shown in Fig. 14.

5. OPERATION

Record A Number Into Memory

5.01 To record.

(1) Remove the faceplate (3.19).

(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 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.)

Note: If set is equipped with the D-180818 Kit of Parts, feature switch must be placed in the OFF position.

(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 a 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 can 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.

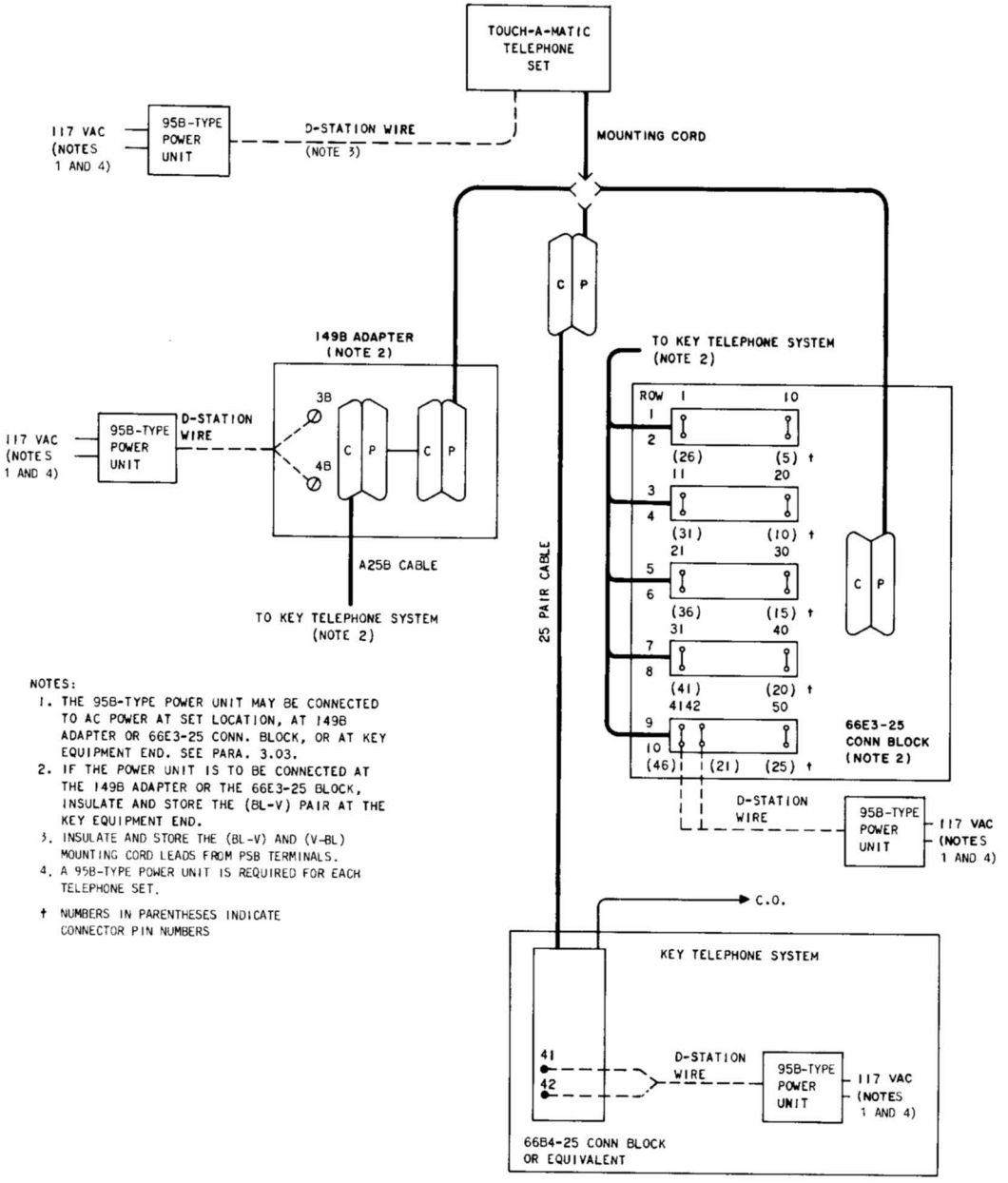
(3) Depress the RECORD OFF button.

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 a 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 dial tone detector only, go off-hook, listen for dial tone and depress the memory button.



NOTES:

1. THE 95B-TYPE POWER UNIT MAY BE CONNECTED TO AC POWER AT SET LOCATION, AT 149B ADAPTER OR 66E3-25 CONN. BLOCK, OR AT KEY EQUIPMENT END. SEE PARA. 3.03.
2. IF THE POWER UNIT IS TO BE CONNECTED AT THE 149B ADAPTER OR THE 66E3-25 BLOCK, INSULATE AND STORE THE (BL-V) PAIR AT THE KEY EQUIPMENT END.
3. INSULATE AND STORE THE (BL-V) AND (V-BL) MOUNTING CORD LEADS FROM PSB TERMINALS.
4. A 95B-TYPE POWER UNIT IS REQUIRED FOR EACH TELEPHONE SET.

† NUMBERS IN PARENTHESES INDICATE CONNECTOR PIN NUMBERS

Fig. 7—872A1M Telephone Set, Alternate Power Connection Method

(c) For sets equipped with the one-touch 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, listen for dial tone, 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) When an 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. Automatic dialing will stop at the recorded WAIT input. 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, listen for dial tone, 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.

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 N, and the following paragraphs.

(4) If removal of set is required, proceed as follows:

(a) Disconnect telephone set.

(b) Unplug battery.

(c) Place battery plug sideways into housing slot below battery jack and tape into place.

Caution: Failure to restrain plug can result in plug damage necessitating battery replacement.

Battery

6.03 The KS-20390L4 or L2 battery has an expected life of about 4 years. It can be replaced without loss of memory provided commercial ac power to the set is continously maintained. To replace the battery, proceed as follows (Fig. 6).

(1) Tilt the front of the set up.

(2) Unplug the battery.

(3) Loosen the captive screw on the battery support.

(4) Remove battery support.

(5) Remove battery.

(6) Install new battery.

(7) When battery has been connected at least five minutes, check memory retention by momentarily disconnecting ac power and then automatically dialing a known telephone number.

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 (3.19).

(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 connector by pulling it perpendicular to the printed wiring board.

(5) Replace the memory. Do not twist the gray power supply cable. 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) Access PSB terminal area per 3.17.

(2) Disconnect dial leads and remove dial.

(3) Install new dial by reverseing procedure.

6-Button Line Key

6.06 To replace.

(1) Remove key per 3.18.

(2) Access PSB terminal area per 3.17.

(3) Disconnect logic reset leads from PSB terminals 10 and 20.

(4) Remove the 508-type plugs and (if provided) the two contact strips 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(11)].

Ringer

6.07 To replace.

(1) Remove the faceplate (3.19) and place the handset aside.

(2) Remove upper housing, if provided, [3.21(b)].

(3) Remove the cradle (3.20).

(4) Disconnect the ringer leads (Fig. 8I).

(5) Tilt the front of the set up.

(6) Unfasten ringer mounting screws (Fig. 6).

(7) Remove ringer.

(8) 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.

Buzzer

6.08 To replace.

(1) Remove the faceplate (3.19) and place handset aside.

(2) Remove upper housing, if provided, [3.21(b)].

(3) Remove the cradle (3.20).

(4) Remove the buzzer mounting screw.

(5) Remove the mounting screw and spacer for TB1 (Fig. 3).

(6) Move terminal board TB1 to gain access to the appropriate terminals on TB2.

(7) Remove appropriate leads (Fig. 8H).

(8) 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.

(1) Remove the faceplate (3.19) and place handset aside.

(2) Remove upper housing, if provided, [3.21(b)].

(3) Remove the cradle (3.20).

(4) Remove the mounting screw and spacer for TB1 (Fig. 3).

(5) Move terminal board TB1 to gain access to the appropriate terminals on TB2.

(6) Disconnect the appropriate leads (Fig. 8H) and remove jack.

(7) 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 or changed to a modular amplifing handset (G6BM, G7BM, or G8BM) by unplugging the H4DU cord and inserting it into the new handset. To replace the G15A handset with a nonmodular amplifying handset (G6B, G7B, or G8B) proceed as follows.

(1) Unplug H4DU handset cord at telephone set end.

(2) Remove faceplate (3.19) and place handset aside.

(3) Remove upper housing, if provided [3.21(b)].

(4) Remove handset cradle (3.20).

(5) Disconnect 616B handset jack (6.09). (Jack may be removed or stored just to right of ringer.)

(6) Insert spade-tipped end of handset cord through hole in the side of the housing.

(7) Attach stayband hook to chassis.

(8) Route leads through wire guide as shown in Fig. 3.

(9) Make connections (Fig. 8H).

(10) Reassemble set.

Faceplate

6.11 To replace an 872A1-87 faceplate with an 872B1 faceplate.

(1) Remove the 872A1-87 faceplate by lifting up at any of its edges.

(2) Remove the four captive housing screws (Fig. 2) from the chassis.

(3) Use the four housing screws to mount the 870A1U-type upper housing to the chassis and 870A1-type housing. The three parts should be held together tightly as the screws are driven.

(4) Place the two tabs located along the lower edge of the 872B1 faceplate in the notches

in the lower side of the 870A1U-type upper housing.

(5) Lower the faceplate to rest on the memory. The spring clip located at the top center of the upper housing should retain the faceplate.

Speakerphone

6.12 For maintenance information on the 3B or 4A speakerphone systems, refer to Section 512-620-100 or 512-700-100, respectively. For speakerphone connections, use applicable Tables B through E.

TABLE J

MOUNTING CORD AND 508 PLUG CONNECTIONS

AMPHENOL PLUG			INSIDE TELEPHONE SET						
			MTG CD TERMINATIONS			SPADE TIP CONDUCTORS FROM 508 PLUGS.			
DESIG	PIN NO.	COLOR	SPADE TIP COND. IN MTG. CD	508 PLUGS					
				COLOR	PIN NO.	PLUG COLOR	PLUG PIN NO.	COLOR	TERM.
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	16§	BL-Y	TB2-11						
BZ	41§	Y-BL	TB2-5						

*Insulate and store.

TABLE J (CONT)

MOUNTING CORD AND 508 PLUG CONNECTIONS

AMPHENOL PLUG			INSIDE TELEPHONE SET						
			MTG CD TERMINATIONS			SPADE TIP CONDUCTORS FROM 508 PLUGS.			
DESIG	PIN NO.	COLOR	SPADE TIP COND IN. MTG. CD	508 PLUGS					
				COLOR	PIN NO.	PLUG COLOR	PLUG PIN NO.	COLOR	TERM.
Spare	17	O-Y	*						
Spare	42	Y-O	*						
HL	18	G-Y	PSB-26						
HLG	43	Y-G	PSB-27						
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-24						
AC2†	46§	V-BL	PSB-25						
SPO‡	22§	O-V	*						
Spare	47	V-O	Net. T						
R1‡	23	G-V	*						
T1‡	48	V-G	*						
P4-IR‡	24	BR-V	*						
P3-IT‡	49	V-BR	*						
LK‡	25	S-V	*						
AG‡	50	V-S	*						
Tip						S	4	G	TB1-8
Ring						S	5	R	PSB-9
						Pink	HL	BR-W	PSB-26
						Pink	HLG	W-BR	PSB-27
						Pink	3	BL	*
						Pink	2	G	TB1-1
						Pink	1	Y-BL	TB1-3

*Insulate and store.
†95B1 Power Unit
‡Designations for speakerphone options. Refer to Tables B through E.
§ Non-standard pin numbers.

TABLE K

TO CONVERT THE 872A1M 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-9	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 E provides speakerphone connections for 1A1 and 1A2 KTS. The same tables apply for 1A KTS

TABLE L

CONNECTIONS FOR D-180818 KIT OF PARTS

D-KIT SWITCH LEADS		TERMINAL POSTS FOR SWITCH LEAD CONNECTORS	
DESIG.	COLOR (NOTE 1)	RECORD DISABLE ONLY	RECORD DISABLE AND DIAL INTERMIX (NOTE 2)
WDC	BK †	*	1
VDD	R	2	2
RCRD	BK	3	3

*Insulate and store.
†Single pin connector.

Notes:
1. These are connectors attached to the switch leads. A single pin connector with a (BK) lead and a double pin connector with a (R) and a (BK) lead.
2. When this option is provided. the LAST NUMBER DIALED (LND) feature is disabled and the 32nd memory may be used just as any other memory.

TABLE M

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
	HPPPSS	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 signals 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.

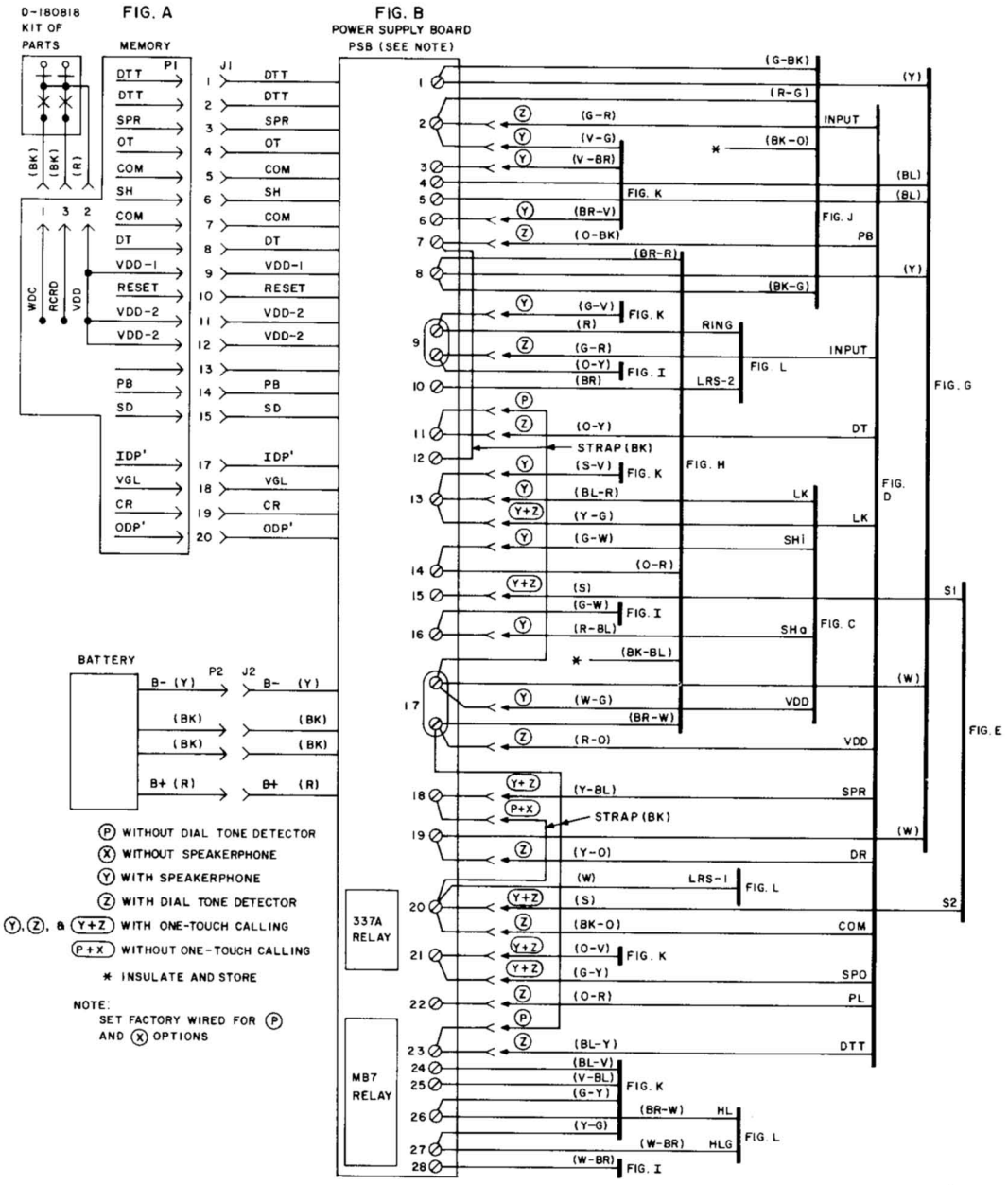


Fig. 8—872A1M Telephone Set, Connections (Sheet 1 of 4)

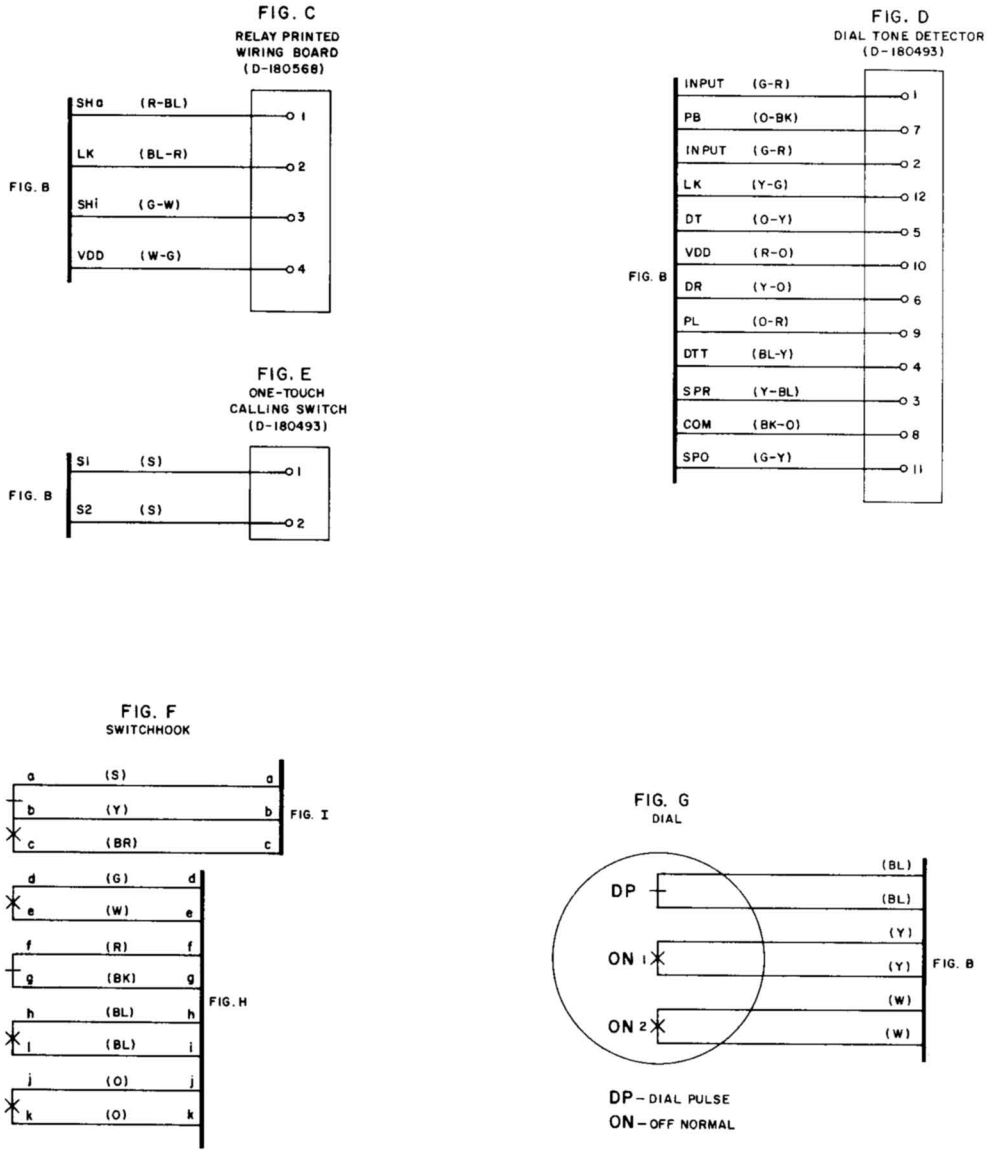


Fig. 8—872A1M Telephone Set, Connections (Sheet 2 of 4)

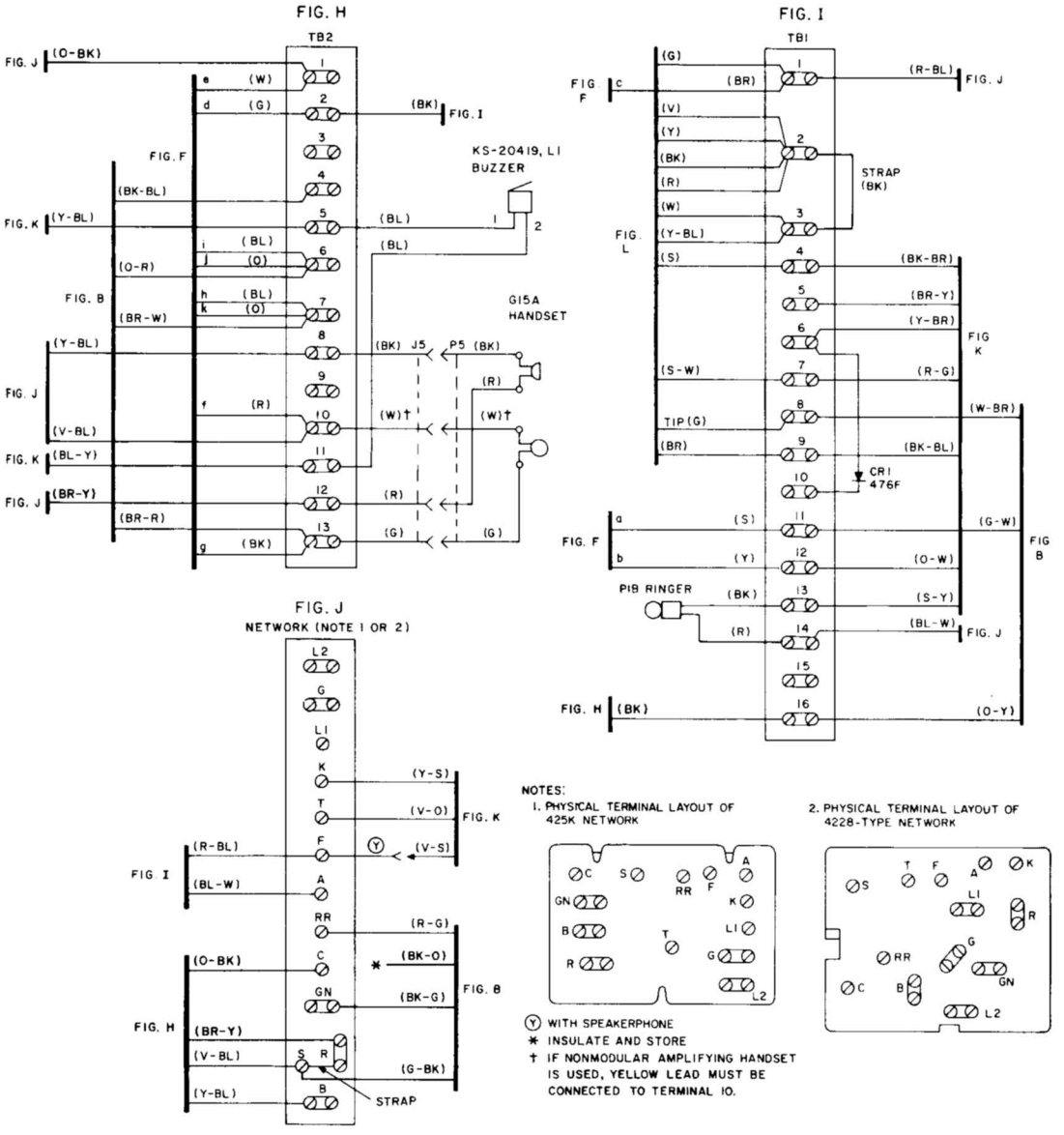


Fig. 8—872A1M Telephone Set, Connections (Sheet 3 of 4)

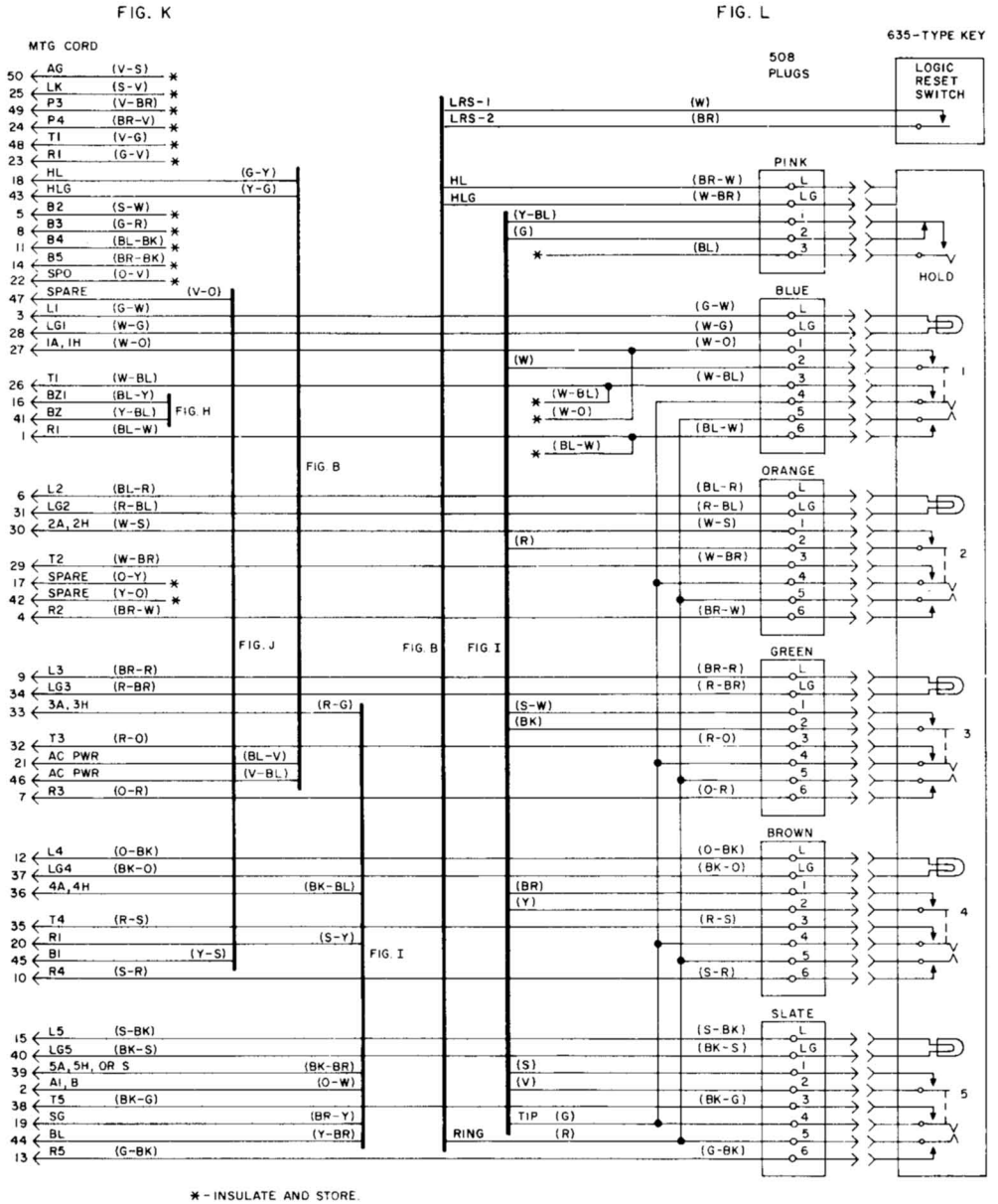
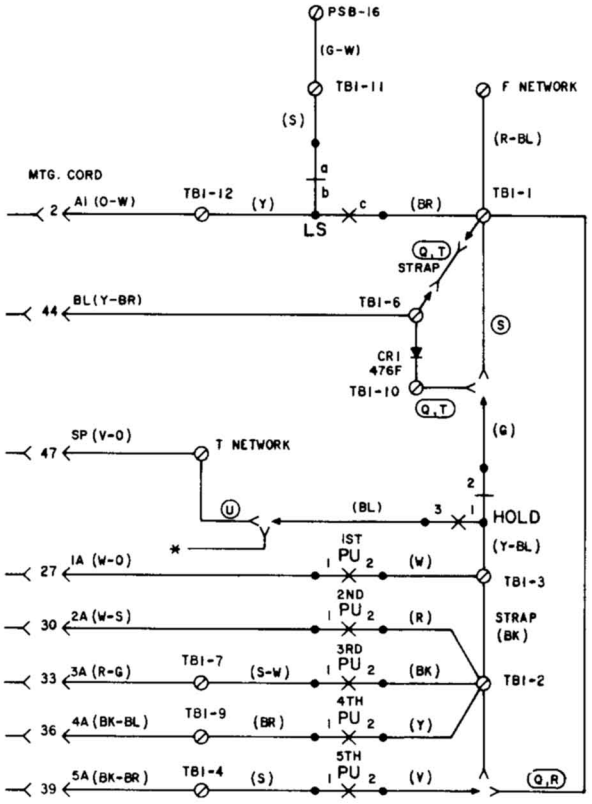


Fig. 8—872A1M Telephone Set, Connections (Sheet 4 of 4)



* INSULATE AND STORE

Ⓠ FOR ADD-ON CONFERENCING, CONVERT THE 5TH PU TO NONLOCKING (REMOVE PIN)

Ⓡ FOR MULTILINE EXCLUSION, CONVERT THE 5TH PU TO NONLOCKING (REMOVE PIN)

Ⓢ WITHOUT STATION BUSY LAMP

Ⓣ WITH STATION BUSY LAMP

Ⓤ "1" HOLD OPTION

Fig. 9—"1" Hold, Exclusion, Station Busy Lamp, and Add-On Conference—1A1 and 1A2 KTS (Showing 5th Key Modified)

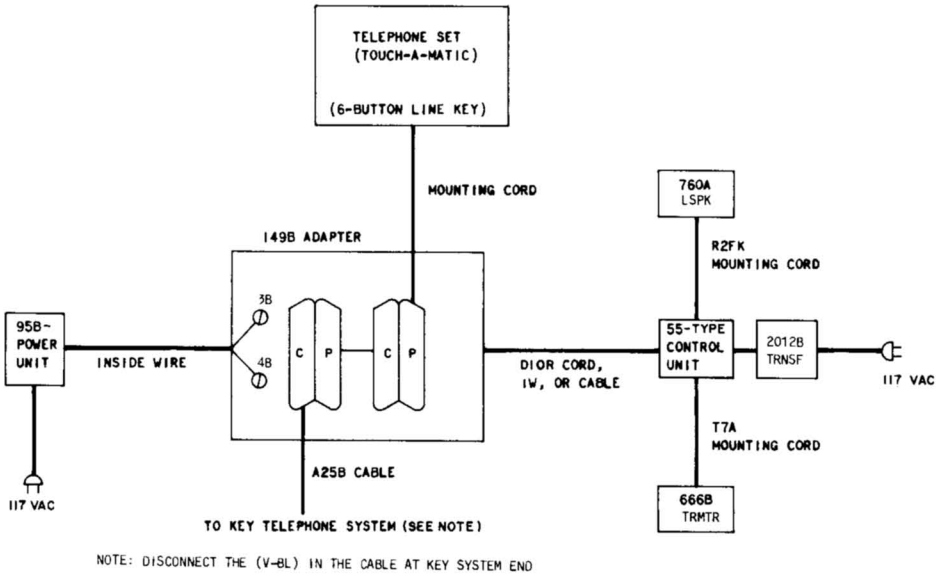
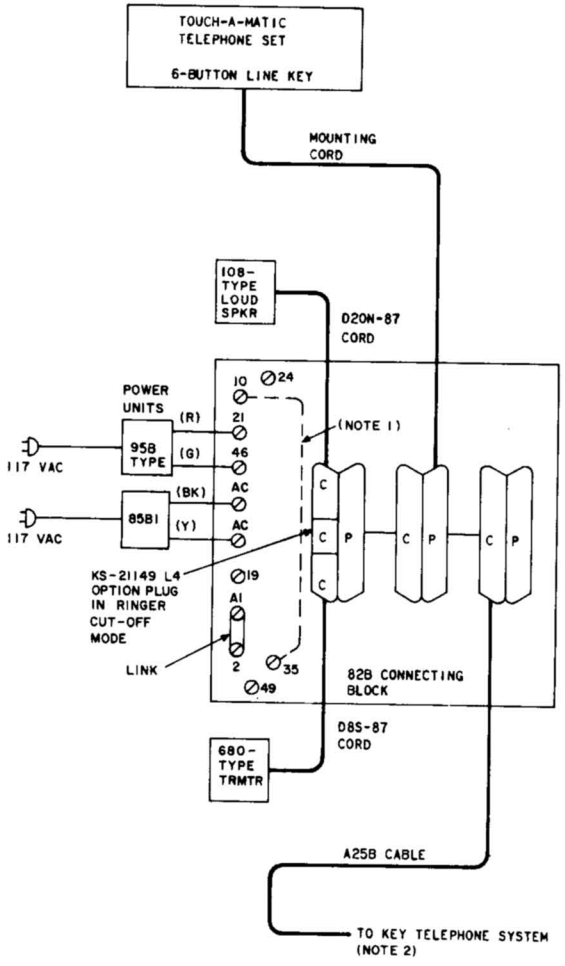


Fig. 10—Block Diagram—872A1M Telephone Set Using 3B Speakerphone



NOTES:

1. STRAP NECESSARY ONLY IF SET IS ALSO EQUIPPED WITH DIAL TONE DETECTOR TO PROVIDE ONE-TOUCH CALLING OPTION.
2. IF POWER IS PROVIDED THROUGH KEY CABLE, USE (BR-V) PAIR FOR 85-TYPE POWER UNIT AND STRAP 24 TO AC1 AND 49 TO AC2 ON 82B CONNECTING BLOCK.

Fig. 11—Block Diagram—872A1M Telephone Set Using 4A Speakerphone

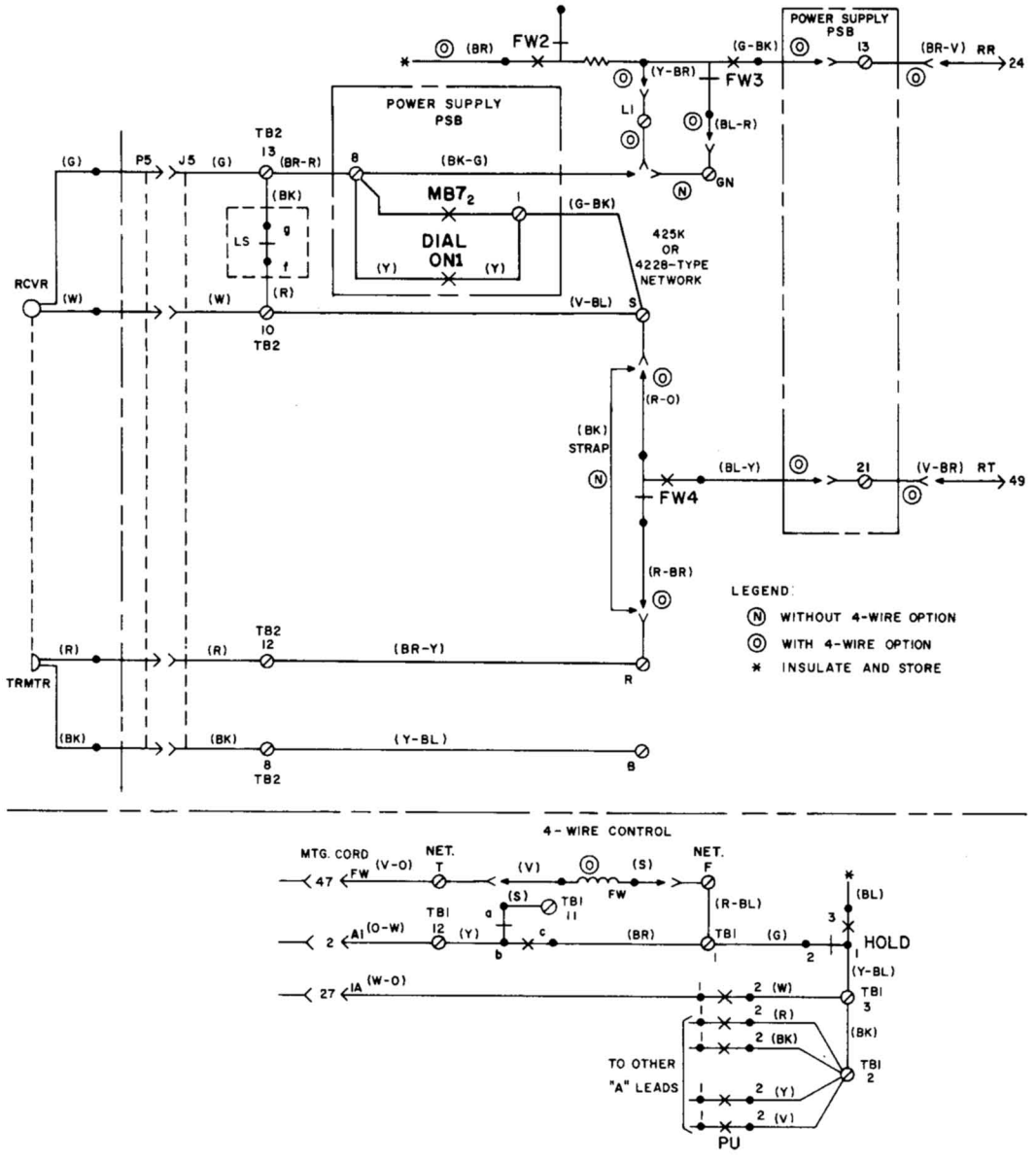
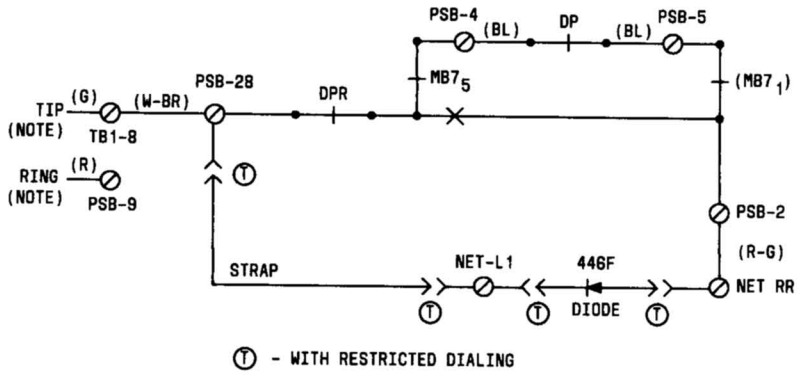


Fig. 12—872A1M Telephone Set—2/4 Wire Connections



T - WITH RESTRICTED DIALING

NOTE: REVERSE POLARITY ON TIP AND RING LEADS ON ALL LINES WITH RESTRICTED DIALING.

Fig. 13—Connections for Restricted Dialing Option

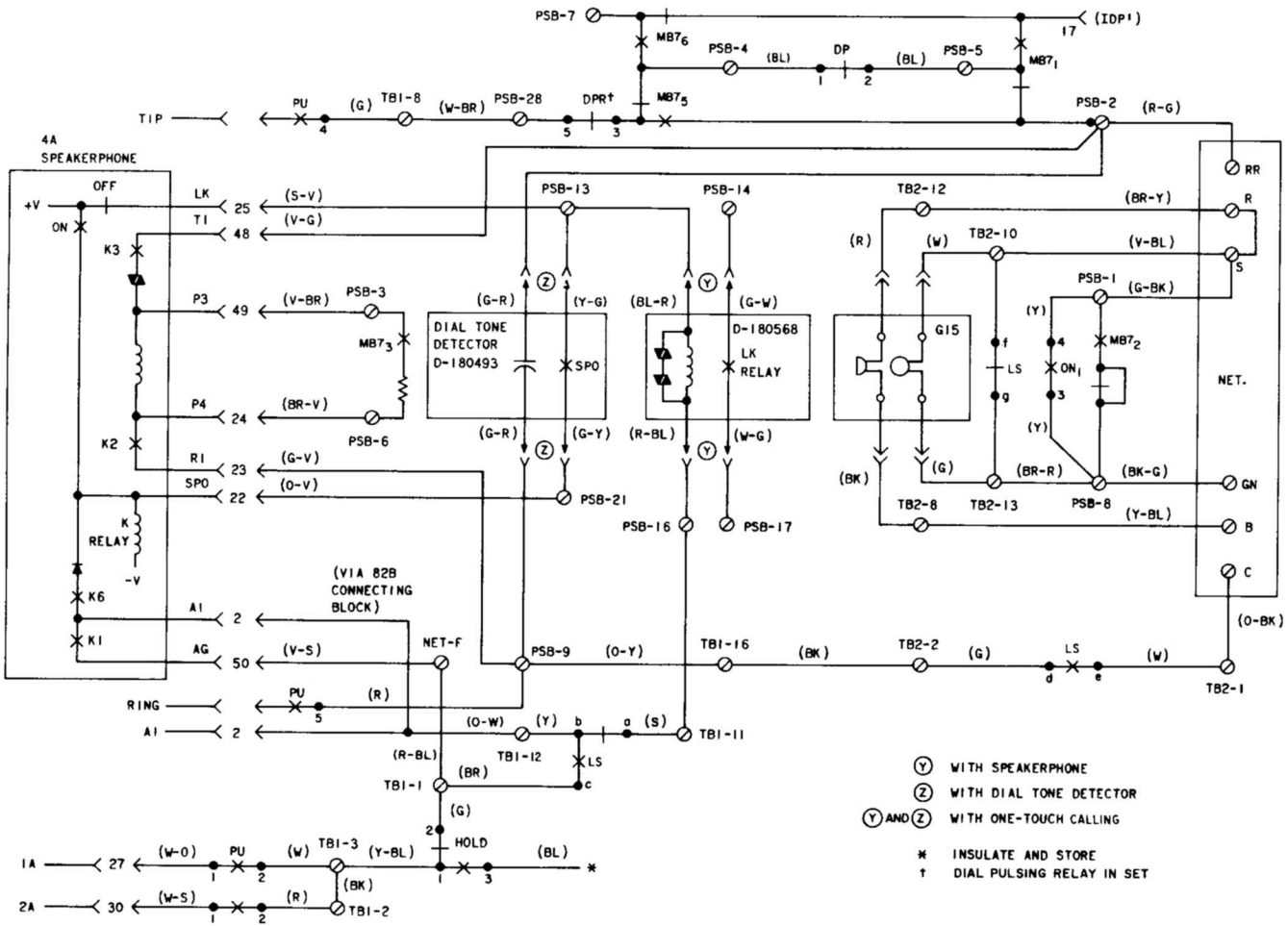


Fig. 14—872A1M Telephone Set, Partial Functional Schematic

TABLE N

TROUBLE ANALYSIS – 872A1M

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
1	Dead set on all lines when off-hook on handset	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. Set remains dead when 95B power unit is disconnected.	Bad connection between handset and telephone set	1. Check handset cord connections 2. Check handset jack connections
			Defective receiver	Check handset
		Dial tone is not present when speakerphone is on.	Open tip or ring lead at 635-type line key	Check leads and connections from contact strips
			Unknown	Replace telephone set*
		Line lamp comes on when handset is taken off-hook. Set becomes active when 95B power unit is disconnected.	Improperly installed or defective memory	1. Check connector cable insertion 2. Replace memory
			Defective PSB	Replace telephone set*
2	Dead set on all lines only when speakerphone is on	Set is active when off-hook on handset.	Improperly connected or defective speakerphone	1. Check connections 2. See appropriate speakerphone BSP for trouble analysis
3	Cannot transmit when off-hook on handset.	Line lamp comes on. Dial tone present, but sidetone absent.	Handset cord improperly inserted into either handset or jack in telephone set	Check handset cord and/or handset
			Defective transmitter	Replace transmitter or handset
			Defective 616B jack	Replace 616B jack
			Defective network	Replace telephone set*

*Refer to 6.02 (4)

TABLE N

TROUBLE ANALYSIS – 872A1M (Contd)

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
4	Cannot manually dial when off-hook on handset (dial tone is present).	Dialing clicks heard (in handset) when dial is returning.	Bridged set off-hook	Place bridged set on-hook
			Speakerphone improperly installed or defective	Check appropriate speakerphone BSP for analysis
		No dialing clicks heard when dial is returning. Condition remains unchanged when 95B power unit is disconnected.	Improperly installed or defective rotary dial	1. Check connections 2. Replace rotary dial
			Unknown	Replace telephone set*
		No dialing clicks heard when dial is returning. With 95B power unit disconnected, set can manually dial.	Improperly installed or defective memory	1. Check connector cable 2. Replace memory
			Defective PSB	Replace telephone set*
5	Cannot manually dial when speakerphone is on. (Dial tone is present.)	Set does manually dial when off-hook on handset	Improperly installed on defective speakerphone	1. Check connections 2. See appropriate speakerphone BSP for trouble analysis
			Defective switchhook	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 connected	Connect battery
			95B power unit not plugged in or defective	Check or replace 95B power unit (should read 13.4 to 18 Vac across screw terminals 24 and 25 on PSB)
			Open in IW	Check IW and connections
			Memory, RECORD OFF or WAIT button stuck down	Clear stuck button
			Defective logic reset switch	Replace line key
			Switch of D-180818 Kit of Parts in ON position	Change switch position to OFF

*Refer to 6.02 (4)

TABLE N

TROUBLE ANALYSIS – 872A1M (Contd)

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
6 (cont'd)			Improperly installed or defective memory	1. Check connector cable 2. Replace memory
			Unknown	Replace telephone set*
		Lamps turns off when any memory button is depressed.	Improperly installed or defective memory	1. Check connector cable 2. Replace memory
			Unknown	Replace telephone set*
		Lamp does not turn off as dial is returning. No relay click heard at beginning of dial wind-up or at end of dial return.	Improperly connected or defective rotary dial (off-normal contact)	1. Check rotary dial connections 2. Replace telephone set*
			Unknown	Replace telephone set *
		Lamp does not turn off as dial is returning, but relay click is heard at beginning of dial wind-up and at end of dial return. Can manually dial off-hook.	Improperly connected or defective memory	1. Check cable 2. Replace memory
			Unknown	Replace telephone set*
		Lamp turns off as dial is returning and stays off. Can manually dial off-hook.	Memory button was not depressed prior to the operation of the dial	Record per 5.01 (4) through (7)
			Defective memory	Replace memory
			Unknown	Replace telephone set*
7	Cannot record properly into the 31 memory positions or into LAST NUMBER DIALED position.	Record lamp functions properly and set dials manually	Defective memory	Replace memory
			Unknown	Replace telephone set*

*Refer to 6.02 (4)

TABLE N

TROUBLE ANALYSIS – 872A1M (Contd)

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
7 (cont'd)		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	Check recording procedure	Record per 5.01 (4) through (7)
			Defective memory	Replace memory
			Unknown	Replace telephone set*
8	Cannot dial properly from memory on handset.	MB7 relay does not operate (no click heard) when memory button is depressed	Battery not connected	Connect battery
			Memory not securely mounted	Tighten memory mounting screws
			Improper and/or defective strap from PSB terminal 18 to PSB terminal 20	Check and/or replace strap lead. See Fig. 8B
			Improper connection to or defective memory	1. Check connector cable 2. Replace memory
			Unknown	Replace telephone set*
		MB7 relay operates (click heard) when memory button is depressed but no dialing clicks are heard. In addition, transmit and receive levels are very low.	WAIT button is stuck down or defective	Free stuck WAIT button or replace memory
			Unknown	Replace telephone set*
		No digits, random digits or all the same digits in memory location(s). Note: memory may or may not have functioned properly at some previous time.	AC power outage for 24 hours or longer	Reestablish ac power and record numbers into memory

*Refer to 6.02 (4)

TABLE N

TROUBLE ANALYSIS – 872A1M (Contd)

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
8 (cont'd)			Defective battery	1. Allow the battery to be charged for a minimum of 5 minutes. Then momentarily remove the 95B power unit from the ac power outlet and reinsert 2. If previously stored numbers are not dialed from memory, replace the battery 3. Repeat procedure
			Defective memory	Replace memory
			Unknown	Replace telephone set*
		Two or more memory locations have same digits which are usually different from originally recorded digits	Static discharge damage	1. Consult Telco Engineer for proper grounding procedure 2. Replace memory
		Automatically dials through a "wait"	Memory not securely mounted	Tighten memory mounting screws
			Improper connection to PSB terminal 23	Check connection to and/or replace strap to PSB terminal 23
			Defective memory	Replace memory
			Unknown	Replace telephone set*
9	Cannot dial properly from memory when on the handset (wired for dial tone detector option)	MB7 relay does not operate (no click heard) when memory button is depressed.	Battery not connected	Connect battery
			Precise TOUCH-TONE dial tone may not be present	Make sure precise (350 Hz and 440 Hz) dial tone is present
			Memory not securely mounted	Tighten memory mounting screws
			Improper installation of dial tone detector D- 180493	Check connections for D-180493 installation

*Refer to 6.02 (4)

TABLE N

TROUBLE ANALYSIS – 872A1M (Contd)

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
9 (cont'd)		Same as above — Addition of strap lead between PSB terminals 20 and 23 does not correct problem	Improper connection to or defective memory	1. Check connector cable 2. Replace memory
		Addition of strap lead between PSB terminals 20 and 23 corrects problem.	Defective memory	Replace memory
			Defective dial tone detector	Replace D-180594 dial tone detector
			Unknown	Replace telephone set*
		Automatically dials through a "wait."	Memory not securely mounted	Tighten memory mounting screws
			Improper connection to PSB terminals 23 and 11	Check installation of D-180493 Kit of Parts
10	Cannot turn speakerphone on when ON button is depressed (wired for speakerphone option).	Speakerphone indicator lamp does not turn on , but line lamp is on.	Handset off-hook	Place handset on-hook
		No dial tone heard, but indicator lamp turns on.	Line button not depressed	Depress line button
		With temporary strap lead added between PSB screw terminals 16 and 13, speakerphone turns on when ON button is depressed.	Improper connections or defective D-180568 Kit of Parts	Check connections to and/or replace D-180568 Kit of Parts
		With 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 power supply PSB	1. Check (G-W) harness lead between screw terminal 11 on TB1 and PSB terminal 16 2. Replace telephone set*
		Speakerphone indicator lamp does not turn on and neither does line lamp	Improper connections or defective 85B1 power unit	1. Check for commercial power 2. Check connections per Tables B, C, D, and E

*Refer to 6.02 (4)

TABLE N

TROUBLE ANALYSIS – 872A1M (Contd)

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
10 (contd)				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 "open circuited" secondary screw terminals)
			Defective speakerphone	See appropriate speakerphone BSP for trouble analysis
11	RECORD lamp does not turn off when speakerphone ON button is depressed (wired for speakerphone option).	With temporary strap lead added between PSB screw terminals 14 and 17, speakerphone turns on when ON button is depressed and RECORD lamp goes off	LK relay circuit defective on D-180568 Kit of Parts	Replace D-180568 Kit of Parts
		Operation of RECORD OFF button or line key buttons turns RECORD lamp off.	Defective switchhook h-i or j-k contacts	Replace telephone set*
12	Cannot turn speakerphone off when handset is lifted off-hook (wired for speaker-phone 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*
13	Cannot hear dial clicks when dialing with speakerphone on (wired for speakerphone option).	With the speakerphone ON button depressed, dialing clicks can be heard.	Physical spacing between speakerphone, loudspeaker and transmitter units is too close	See appropriate speakerphone BSP for proper placement of units
14	Speakerhone 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 connected	Connect battery
			With 4A speakerphone, strap not added on 82B block	Add strap from terminal 10 to 35 in 82B block
		With temporary strap between PSB screw terminals 15 and 20 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

*Refer to 6.02 (4)

TABLE N

TROUBLE ANALYSIS – 872A1M (Contd)

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
14 (cont'd)			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 PSB screw terminals 13 and 21, speakerphone turns on.	Defective connections between dial tone detector and PSB.	Check (Y-G) and (G-Y) leads to PSB terminals 13 and 21, respectively
			Defective dial tone detector D-180493 Kit of Parts	Replace dial tone detector PWB assembly of D-180493 Kit of Parts
15	Speakerphone turns on but set does not automatically dial when memory button is depressed (Wired for one-touch option).		(BK) strap leads to screw terminals 11 and 23 on PSB were not insulated and stored when option was wired	Insulate and store strap leads.
		Set automatically dials when screw terminals 20 and 23 on PSB are temporarily shorted.	Precise TOUCH-TONE dial tone not present or a defective dial tone detector	1. Check CO line for presence of precise TOUCH-TONE 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
16	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
17	Cannot turn speakerphone off (wired for one-touch option).	Normal conversational level on speakerphone.	Defective muting circuit	Replace telephone set*

*Refer to 6.02 (4)

TABLE N

TROUBLE ANALYSIS – 872A1M (Contd)

TROUBLE NUMBER	FAILURE	ADDITIONAL SYMPTOM	POSSIBLE CAUSE	REMEDIAL ACTION
17 (contd)		Speakerphone turns off when OFF button is depressed but turns on when OFF button is released.	(BK) strap to screw terminal 18 on PSB was not insulated and stored when option was wired	Insulate and store 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	Replace memory
		Speakerphone turns off when handset is taken off-hook but turns on when handset is placed on-hook.	Defective circuit of D-180493 Kit of Parts	Replace dial tone detector PWB assembly of D-180493 Kit of Parts
18	Set dials automatically but does not wait for dial tone (wired for one-touch calling)		Noise on line	1. Add .05 mf capacitor between PSB-17 and PSB-23 2. Remove above capacitor and add resistor (10 KΩ to 50 KΩ) in series with (G-R) dial tone detector input lead.
19	Automatic dialing commences for no apparent reason (wired for one-touch calling)		Static discharge damage	1. Consult Telco Engineer for proper grounding procedure 2. Replace memory