

## TELEPHONE SETS—2671B1M

# Call-a-matic®

### IDENTIFICATION, ASSEMBLY, CONNECTIONS, OPERATION, AND MAINTENANCE

#### 1. GENERAL

1.01 This section is reissued to:

- Add information on 635A5 key, P-23F503 collar, and E-5837 key designation tabs.
- Change index space color on cartridge tape from light to dark color, Fig. 1, 3, 5, and 8.



Fig. 1—2671B1M Telephone Station With Speakerphone

#### 2. IDENTIFICATION

##### Purpose

2.01 This set provides for automatic dialing of up to 500 prerecorded, fourteen digit telephone numbers on CO or PBX line circuits.

##### Application

2.02 The 2671B1M telephone set can be equipped as follows:

- Single line service—with or without speakerphone, A lead control, and station busy lamp.
- Five line pickup and hold—in 1A, 1A1, 1A2, or 6A KTS with or without speakerphone and station busy lamp.

**Note:** Speakerphone can be either internal or external.

##### Ordering Guide

**Note:** When ordering a 2671B1M telephone set, depending on the services required as shown in Table A, coded apparatus listed as modular items must be separately ordered and installed to furnish a complete telephone station as shown in Fig. 1.

- Set, Telephone, 2671B1M—Consists of a 35S3A TOUCH-TONE® dial, 51B (CALL-A-MATIC® set) dial, 635A2 or 635A5 key, 425K network, P1A ringer, 165A adapter, and P-90D212 cord assembly.

##### (a) Modular Items (see Table A)

- Cord Mounting, D10S-\*, D10T-\*, D20L-\*, D20M-\*, or D50AB-\*
- Cartridge, 1B1 (250 entries) or 1B2 (500 entries)—includes an alphabetical designation strip (KS-20166L4 on the 1B1 cartridge and KS-20166L1 on the 1B2 cartridge).
- Set, Hand, G12A-\* and Cord, H4DB-\*

IDENTIFICATION MAINTENANCE

3A HOUSING ASSEMBLY  
(INCLUDES P-86K6\*\* FACEPLATE  
WHICH MAY BE ORDERED SEPARATELY  
FOR MAINTENANCE PURPOSES)  
\*\* COORDINATED COLOR SUFFIX

612A HANDSET

612A HANDSET

H4DB CORD

2671B1M  
TELEPHONE SET

CARTRIDGE  
1B1 (250 NUMBERS)  
1B2 (500 NUMBERS)

674B TRANS

250BI FACEPLATE

250A1

250C1

250D1

39A  
POWER UNIT

D10S  
D20M

D10T  
D20L  
D50AB

MOUNTING CORDS

Fig. 2—Station Modular Arrangement, 2671B1M Telephone Set

- Faceplate, 250A1-\*, 250B1-\*, 250C1-\*, or 250D1-\*

- Housing Assembly, 3A-\* (includes P-86K 6-\* faceplate)

(b) **Replaceable Components**

- Dial, 35S3A
- Dial, 51B
- Key, 635A2, or ♦635A5♦ (see appropriate section in Division 512 for components)
- ♦P-23F503 Collar (635A5 key)♦
- P-88E166 Collar (635A2 key)
- All items listed as modular
- Strip, Designation, E-5253 (635A2 key)
- ♦Strip, Designation, E-5837 (635A5 key)♦
- P-86K 6\* Faceplate (51B dial faceplate)

\* Add color or coordinated color suffix.

(c) **Optional Components (order separately)**

- |   |   |                      |
|---|---|----------------------|
| <ul style="list-style-type: none"> <li>●KS-20166L2 (1B2 numerical)</li> <li>●KS-20166L3 (1B1 or 1B2 blank)</li> <li>●KS-20166L5 (1B1 numerical)</li> </ul>  | } | Strip<br>Designation |
| <ul style="list-style-type: none"> <li>●Buzzer, KS-8109L2</li> <li>●♦Buzzer, KS-20419L1♦</li> <li>●P-90D012 Guard Assembly (polarity guard)</li> <li>●Diode, KS-15724L1 (station busy lamp)</li> <li>●Transmitter, 674B (internal) or P-90D234 Relay Assembly (external)</li> <li>●Loudspeaker, 760A-*</li> <li>●Unit, Control, 55B or modified 55A</li> <li>●Transformer, 2012B</li> </ul> | } | Speaker<br>phone     |

- Transmitter, 666B (external)

(d) **Associated Items**

- Unit, Power, 39A (order separately—one per CALL-A-MATIC telephone set required)
- ♦Subscriber Instruction Booklet, SIB-2435♦ (packaged with set)

**Design Features**

- Six service configurations by addition of modular and optional items to 2671B1M telephone set (Table A).
- Choice of cartridges with capacity of 250 numbers (1B1) or 500 numbers (1B2)
- Removable faceplate for handwritten entries on directory tape.
- Cartridge removable for typewritten entries on tape.
- Interlock switch disconnects power to directory tape drive motor on 51B dial when faceplate is removed.
- Automatic reset after approximately 9-second delay in dialing or recording action.
- Operating instructions imprinted on beginning of tape and on decal near dialer control buttons.
- Replaceable directory selector designation strips.
- All pickup keys convertible to signaling.
- Individual line or common ringer.
- Station busy lamp (optional).
- AC or DC operated buzzer (optional).
- Internal or external speakerphone (optional).
- Designed for use in business type surroundings not subject to excessive amounts of dust or dirt. Operating temperature range is from 40°F to 120°F with maximum relative humidity of 95 percent.

**TABLE A**  
**REQUIRED MODULAR ITEMS (ORDERED SEPARATELY)**

TYPE OF SERVICE	CARTRIDGE	HOUSING ASSEMBLY	HANDSET	HANDSET CORD	MOUNTING CORD (NOTE 1)	FACE-PLATE	TRANSMITTER
Single Line Set	1B1 or 1B2	3A-*	G12A-*	H4DB-*	D10S-* or D10T-*	250C1-*	
Single Line Set With Internal Speaker- phone					D20L-* or D20M-*	250D1-*	674B
Single Line Set With External Speaker- phone					D20L-* or D20M-*	250C1-*	Note 2
6-Button Key Set					D50AB-*	250A1-*	
6-Button Key Set Internal Speaker- phone					D50AB-*	250B1-*	674B
6-Button Key Set External Speaker- phone					D50AB-*	250A1-*	Note 2

\* Add color or coordinated color suffix.

**Notes:**

1. The D10S and D20M cords are spade tip ended for connection to 44-type connecting blocks. The D10T, D20L, and D50AB are plug ended for use with 66E3-type connecting blocks or A25B connector cables.
2. Requires a P-90D234 relay assembly and external 666B transmitter. Relay assembly is installed in place of 674B transmitter.

**Operating Features**

(a) 51B Dial

- RECORD button—when pulled, places 51B dial in record mode. When pushed, resets recording head to start position.
- WAIT button—used while recording to provide stop for second dial tone.
- CALL button—for dialing prerecorded numbers.

(b) 1B-Type Cartridge

- DIRECTORY SELECTOR—drives directory tape to desired index location.
- NAME SELECTOR—rotated to position specific name over index space.

**3. ASSEMBLY AND CONNECTIONS**

**3.01** The basic CALL-A-MATIC telephone set is shipped with a housing to protect the modular components. This housing is not intended for use after the telephone set is put in service, and can be disposed of per local instructions. It is not intended for reuse by the distributing house.



Fig. 3—Location of Components

**3.02** The 2671B1 telephone set is furnished wired for 6-button key use on 1A1 or 1A2 KTS. When used as a single-line set, wiring changes must be made as shown in Table C. Buzzer leads and certain speakerphone leads are insulated and stored.

**3.03** When used as a 6-button set with internal speakerphone, only two of the three combinations of features shown in Table B can be provided at one time, due to a lack of mounting cord conductors.

**3.04** When used as a 6-button set without speakerphone or with external speakerphone transmitter, all three of the options may be supplied simultaneously.

#### Optional Components

**3.05** Assemble and connect the required optional components to the 2671B1M telephone set as follows:

- (1) Loosen 35S3A dial mounting screws and move dial to one side. Dial should not be unplugged for normal component assembly. 51B dial must be removed whenever it is necessary to unplug the 35S3A dial.



**All connections or wiring changes should be made before assembling the 35S3A dial and the 674B transmitter**

#### or P-90D234 relay assembly to the telephone set.

- (2) Add a P-90D012 polarity guard assembly, when specified by local instructions. The guard assembly mounts to a bracket on the base located under the 35S3A dial and in front of the network. Fasten guard with two screws supplied with the telephone set and connect leads as shown in Table G.

- (3) Mount the KS-8109L2 buzzer, if required, to the plastic block on left side of 35S3A dial support bracket so that its frame is insulated from metal parts of set; also position the buzzer so its adjusting screw is accessible when the faceplate is removed. Refer to Fig. 13B for buzzer connections.

- (4) The KS-20419L1 buzzer (optional) will mount on one of the screws which is part of the plastic block covered in 3.05(3). Refer to Fig. 13B for connections.

- (5) Connect the 674B transmitter (for internal transmitter feature) as shown in Fig. 11 or the P-90D234 relay assembly (for external transmitter feature) as shown in Fig. 12.

- (6) Mount the 674B transmitter or the P-90D234 relay assembly to the brackets on the base of the set (Fig. 6). Either the transmitter or the relay assembly are compatible to mounting on these brackets.

#### Modular Components

- (7) Fasten 35S3A dial in its proper position on the mounting brackets.

- (8) Install the 1B1 or 1B2 cartridge as follows:

- (a) Raise latch on top of cartridge to open position (Fig. 8).

- (b) Insert front end of cartridge into 51B dial until shaft extensions engage slots in dial. Lower rear of cartridge into place and close latch. When power is applied to 51B dial, tape may run to location indicated on directory selector.

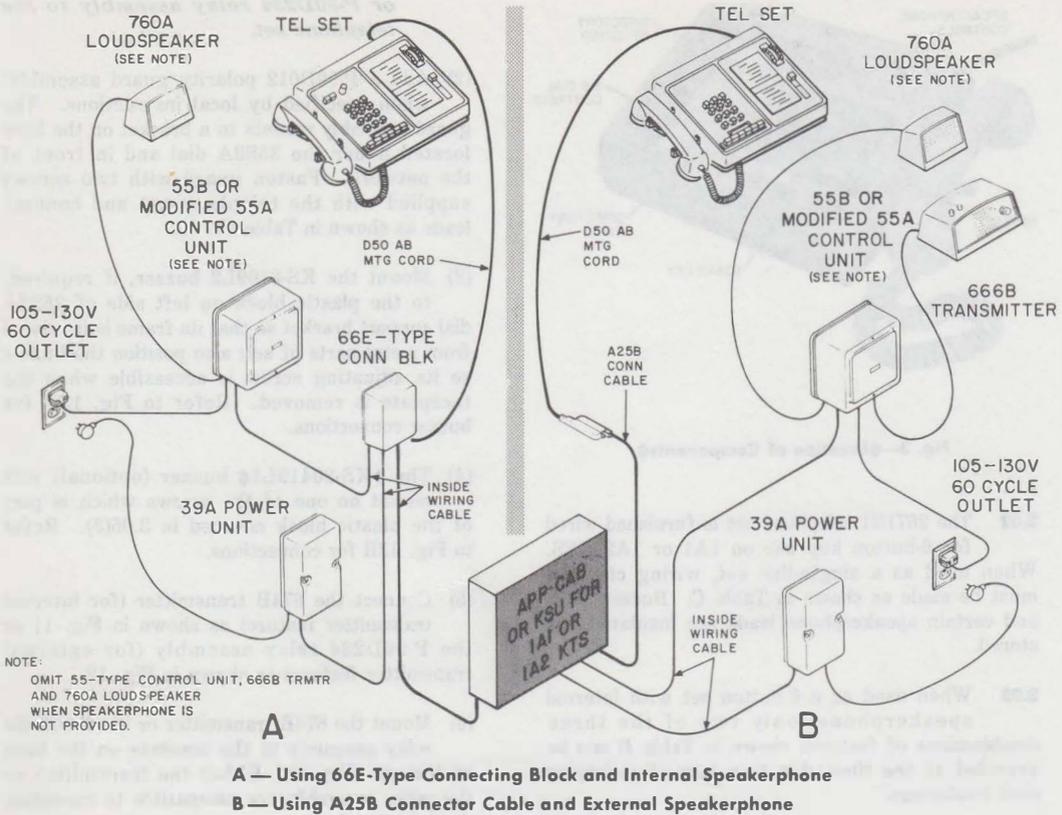


Fig. 4—Two Typical Installation Layouts For 6-Button Key Sets

(9) Install the housing with both faceplates removed and fasten housing in place with four captive screws.

(10) Install 51B dial faceplate (Fig. 5).

(11) The proper 250-type faceplate (Table A) must be installed over the 35S3A dial. If single-line service is provided, the collar, buttons, and caps must be removed from the 635-type key before installing the 250-type faceplate.

**Note:** 635-type key is left in place but is electrically inoperative. Rewire set as shown in Table C. (Retain or dispose of collar, buttons, and caps per local instructions.)

(12) Connect mounting cord by carefully tipping the telephone set up on its front edge to expose cord connector. Plug cord into connector and secure.

(13) Connect handset and cord. Jacks are provided in both the handset and telephone set to receive the proper plug of the H4DB cord. The wedge-shaped end of the cord is plugged into the handset and the square end into the base.

**THINK** When using these push-in-lock type plugs make sure the contacts are in proper position to make electrical connection with the mating contacts,



Fig. 5—Faceplate Location



Fig. 8—Removal of 1B Cartridge

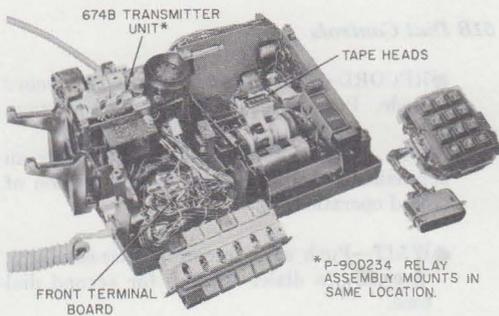


Fig. 6—2671B1M Telephone Set, 635-Type Key and 3553A Dial Removed



Fig. 9—Placing 1B Cartridge in Typewriter

*and that the plug is placed in the proper receptacle. Either error will cause circuitry problems and extreme difficulty in removing the plug.*

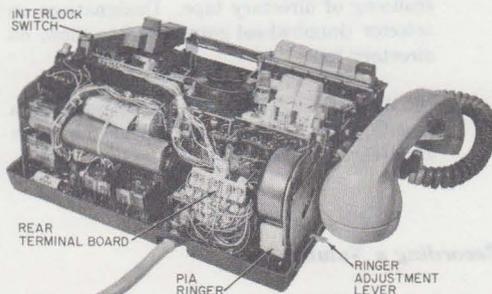


Fig. 7—2671B1M Telephone Set, Rear View

**3.06** When selecting a location for installing the 39A power unit the following precautions and specifications should be met:

**Caution:** *Disconnect ac power to the 39A power unit before connecting or removing wiring from unit.*



**Fig. 10—1B Carriage in Place For Typing Entries**

- Must be located within 18 inches of a 3-wire, 105- to 130-volt ac power outlet not under control of a switch.
- Must be separated at least 6 inches from a 55-type control unit, telephone set, or auxiliary ringer.
- Resistance of the conductors between the power unit and telephone set must not exceed 2-1/2 ohms per conductor, for example:

D station wire (22 ga)	150 feet
E block wire (21-1/2 ga)	175 feet
KS-7144 flat cordage (18 ga)	370 feet
ABAM cable (22 ga)	150 feet
ABMM cable (24 ga)	100 feet
D inside wiring cable (24 ga)	100 feet
A-type connector cable (24 ga)	100 feet

- Power unit is mounted on backplate secured to wall.

**3.07** Install the directory selector designation strip, where required, as follows:

- (1) Move the Directory Selector wheel to the "I" on tape and wait for tape to run to proper position.

- (2) Disconnect tape drive power to dial by removing faceplate.
- (3) Rotate thumbwheel until raised portion (island) between YZ and 1 appears.
- (4) Peel off existing designation strip starting at island.
- (5) Start new strip at island and apply while rotating thumbwheel.
- (6) Replace faceplate which should restore power to the dial.

**3.08** An instruction booklet, SIB-2435, "How to Use the CALL-A-MATIC® Telephone" is packed with each set and should be left with the customer.

#### 4. OPERATION

##### 51B Dial Controls

- **RECORD**—Pull up and release for record mode. Push to reset dialer to start position.

**Note:** Dialer automatically resets after an approximate 9-second delay in any portion of record operation.

- **WAIT**—Push after recording access digits to condition dialer to stop for second dial tone.
- **CALL**—Push, after receiving dial tone to dial prerecorded numbers.
- **DIRECTORY SELECTOR**—Rotate for automatic scanning of directory tape. Designations on selector thumbwheel correspond to those on directory tape.
- **NAME SELECTOR**—Rotate to position a specific directory tape entry over the index area (dark area).

##### Recording a Number

- (1) Rotate **DIRECTORY SELECTOR** to proper group position.

(2) After directory tape has stopped, use NAME SELECTOR to position a vacant space on tape over index area.

(3) Remove 51B dial faceplate and with a pencil, write name and complete telephone number including access digits if required, between lines of index space.

(4) Pull the RECORD button.

(5) Dial complete telephone number as written in index space using the TOUCH-TONE dial.

**Note:** If number includes access code, depress WAIT button momentarily after dialing access digits, then dial remainder of number.

(6) Push RECORD button.

**Note:** Dialer will reset automatically after approximately 9 seconds if button is not pushed. Any previously recorded number will be automatically erased.

#### 4.01 **Recording a Number While Making a**

**Call:** A line key must be depressed and handset removed or speakerphone ON button depressed before proceeding with the six operation steps required to record a number.

#### **Calling a Recorded Number**

4.02 To use the 51B dial to originate a call proceed as follows:

(1) Rotate DIRECTOR SELECTOR to group position where name and number are recorded.

(2) Position name and number to be called over index space, using NAME SELECTOR. Make certain that lines on tape correspond closely with index space.

(3) Depress a line key, lift handset or push speakerphone ON button and listen for dial tone.

(4) Push CALL button momentarily.

(5) If called number has an access code, dialer will stop after access code is dialed. When second dial tone is heard, depress CALL button again to complete dialing.

**Note:** If it is desired to bypass the access code; for example, with night service, push CALL button before lifting handset. When dialer stops, lift handset, listen for dial tone and push CALL button again.

#### **Typing Entries on Directory Tape**

4.03 To record names and telephone numbers on the directory tape with a standard typewriter proceed as follows for proper handling of the 1B cartridge:

(1) Rotate directory selector to "1" position and allow tape to come to rest.

(2) Remove 51B dial faceplate.

(3) Rotate directory latch, grasp latch and lift 1B cartridge out of set (Fig. 8).

(4) Remove platen (roller) from typewriter, pull a loop in directory tape from bottom roller of cartridge and carefully feed platen through loop. Be sure tape is under typewriter bail (Fig. 9).

(5) Lock roller in place and position 1B cartridge on carriage as shown in Fig. 10. Rapid return of carriage may require supporting 1B cartridge.

(6) Type entries between lines on directory tape. Use pencil type eraser to remove entries or errors, taking care not to wrinkle or tear tape.

**Caution:** Do not use ink eradicator or typewriter eraser. Cartridge must be replaced if tape is torn.

(7) Remove cartridge from typewriter and replace in telephone set.

**Note:** Any excess slack in tape in the typing process should be fed back into the cartridge with the name selector wheel.

(8) Replace faceplate making certain that it is fully seated so that interlock switch is operated.

## 5. MAINTENANCE

**Caution:** *Disconnect power to 39A power unit before working on set.*

**5.01** Maintenance of the 2671 B1M telephone set should be limited to a physical check of wiring shown in Fig. 13 and replacement of the items listed under the Ordering Guide as:

- Modular items
- Replaceable components
- Options
- Associated items

**5.02** Detailed information on the 51B dial is contained in Division 812. Maintenance of the 51B dial is not recommended; if defective, replace set.

**5.03** When replacing set, install customer's indexed cartridge in new set to avoid necessity of entering listings on new cartridge.

**5.04** If 51B dial is not operating properly:

- (1) Check power supply to set.
- (2) Look for foreign material in gears.
- (3) Make certain interlock switch is closed.
- (4) It may be necessary to reset dialer by removing cartridge and operating CALL button.



**Resetting the dialer, by removing the tape cartridge and operating the CALL button, may be necessary if the RECORD or CALL button is used while the entry space is misaligned by 1/3 or more of its width and the directory selector wheel is moved causing the unit to jam.**

TABLE B

FEATURE COMBINATION CONNECTIONS

FEATURE COMBINATION	RINGER	BUZZER	HOLD LAMP
Ringer and buzzer	Factory-wired	(V-BL) (BL-V)	
Ringer and Hold Lamp	Factory-wired		(V-BL) (BL-V) Note
Buzzer and Hold Lamp		(V-BL) (BL-V)	(Y-S) (S-Y) Note

**Note:** Connect to (Y-G)(G-Y) hold lamp leads from pink plug using spare terminals (2 of rear board and 1 of front board) or D-161488 connectors.

TABLE C  
SINGLE-LINE SET CONNECTIONS  
MOUNTING CORD ARRANGEMENTS  
(Note 2)

MTG CORD COLOR	WITHOUT SPEAKERPHONE D10S OR D10T MTG CORD	WITH SPEAKERPHONE (NOTE 1) D20L OR D20M MTG CORD
W-BL BL-W	T R	T R
W-O O-W	A or H A1 or B	A or H A1 or B
Y-BL BL-Y	AC AC	AC AC
Y-O O-Y		F1 A1
Y-G G-Y		P1 S
Y-S S-Y	B or B1 R or R1	B or B1 R or R1

TABLE C (Cont)

SINGLE-LINE SET CONNECTIONS  
MOUNTING CORD ARRANGEMENTS

MTG CORD COLOR	WITHOUT SPEAKERPHONE D10S OR D10T MTG CORD	WITH SPEAKERPHONE (NOTE 1) D20L OR D20M MTG CORD
V-O O-V		-15 M1
V-G G-V		T1 R1
V-BR BR-V		IT IR
V-S S-V	Spare Com	AG COM

Notes: 1. Certain speakerphone leads are insulated and stored and must be connected as shown in Fig. 11 and 12.

2. Modify set for single line service as follows:

- Disconnect, insulate and store (R-G) and (G-R) key leads from 9 and 10 of front terminal board.
- Connect stored (BL-W) key strap to 9 of front terminal board and (W-BL) strap to 10 of front board.
- Remove, insulate and store (BR-V) key lead from 8 of front terminal board. Connect stored (W-O) key strap to 8 of front board.
- When internal speakerphone is furnished, disconnect, insulate and store (Y-G) (G-Y) hold lamp leads from terminals 1 and 10 of rear board.

TABLE D

CONNECTIONS FOR 1A KTS AND/OR STATION BUSY LAMP

STATION BUSY LAMP		LINE SWITCH			HOLD KEY		MOUNTING CORD		DIODE KS-15724, L1	M1W CORD
		Y	BR	G	V-BR	BL	Y-BR	V-5 NOTE 2		
Without	1A	7	6	8	9	2	L2	6		
	1A1-1A2	7	8	9	2	*	L2	8		
With	1A	11	L2	8	9	2	L2	L2		
	1A1-1A2	7	L2	9	2	*	L2	L2		

\*Insulated and stored.

Notes: 1. Numbered terminals are on the front terminal board. Lettered terminals are on the network.

2. Connection shown is for speakerphone. If speakerphone is not furnished, insulate and store lead.

TABLE E

◆635A2 OR 635A5 KEY—PICKUP TO SIGNALING KEY  
CONVERSION◆

KEY ARRANGEMENT	KEY LEADS ON FRONT TERMINAL BOARD				
	R	BK	Y	V	S
HPPPPP	3	3	3	3	5
HPPPPS	3	3	3	11	5
HPPPSS	3	3	11	11	5
HPPSSS	3	11	11	11	5
HPPP*P*S	2	3	3	3	8
HPP*P*P*S	3	3	3	3	8

\* For common signaling, remove (G) strap between terminals 2 and 3. Convert 6th key to nonlocking for signaling key.

TABLE F

## 39A POWER SUPPLY CONNECTIONS

LEAD DESIGNATION	39A POWER SUPPLY TERMINAL	CONN. CABLE AND MTG. CD. CONDUCTOR		TELEPHONE SET TERMINAL J2
		PIN	COLOR	
AC	AC	41	Y-BL	16
AC	AC	16	BL-Y	14
COM	GRD	25	S-V	17

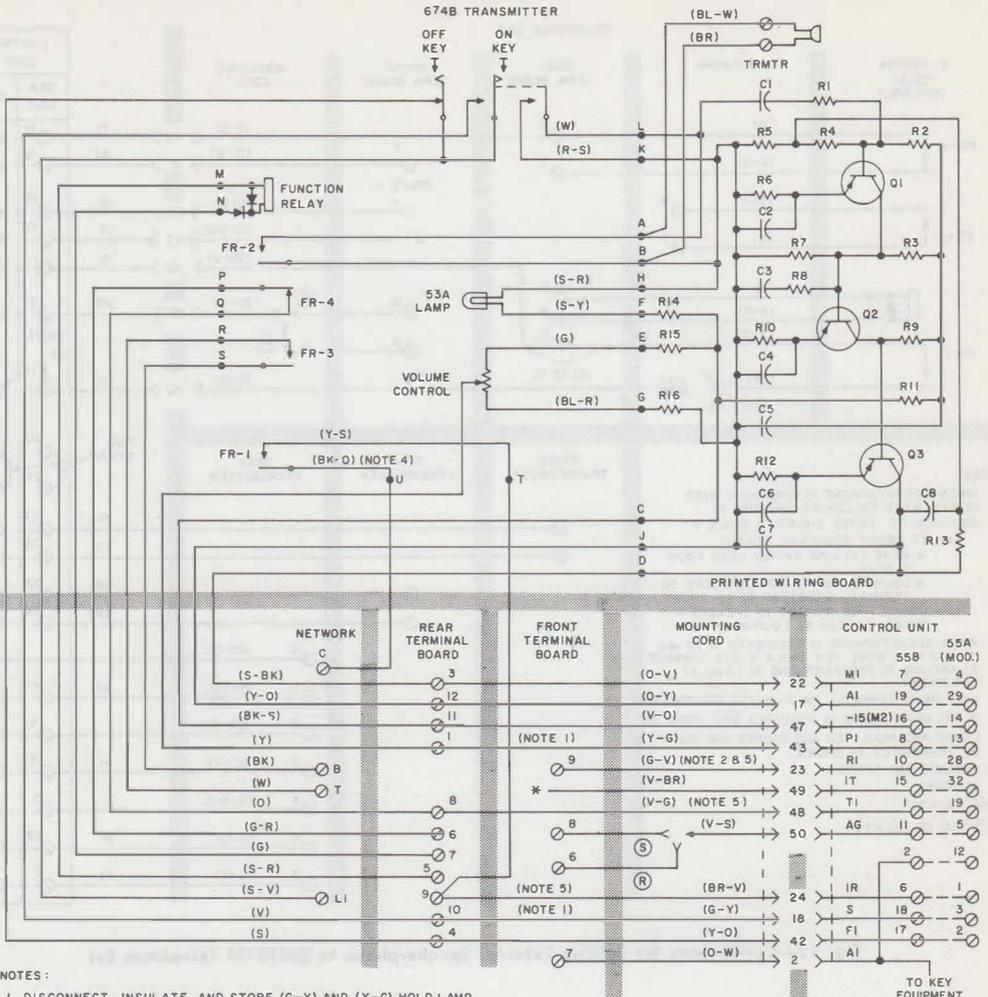
*Caution: Proper supply connections must be made as shown in Table F. Transposition of COM lead, with AC leads will result in improper operation of and possible damage to the 51B dial.*

TABLE G

## P-90D012 GUARD ASSEMBLY CONNECTIONS

WIRE OR LEAD		REMOVE FROM	CONNECT TO
Dial	G-W	C	S*
	BK	RR	T*
Line Switch	W	C	S*
Polarity Guard	W		C
	G		RR
674B Trmtr or P-90D234 Relay Assy	BK-O	C	S*

\* Terminal on polarity guard.



- NOTES:
- DISCONNECT, INSULATE AND STORE (G-Y) AND (Y-G) HOLD LAMP KEY LEADS FROM TERMINALS 10 AND 1.
  - WHEN SPEAKERPHONE IS FURNISHED WITH 1A KTS, MAKE THE FOLLOWING CHANGES IN ADDITION TO THOSE SHOWN IN TABLE E:
    - AT FRONT TERMINAL BOARD:
      - MOVE (Y) LINE SWITCH LEAD FROM 7 TO 11.
      - CONNECT (G-V) MTG CORD LEAD TO TERMINAL 8 INSTEAD OF AS SHOWN.
    - CONNECT SG GROUND TO SPEAKERPHONE AI LEAD AT EQUIPMENT.
  - WHEN SPEAKERPHONE IS FURNISHED WITH 1A1 OR 1A2 KTS, WIRE PER TABLE D AND CONNECT AI GROUND TO SPEAKERPHONE AI LEAD AT EQUIPMENT.
  - IF POLARITY GUARD IS REQUIRED, SEE TABLE G.
  - LEADS ARE INSULATED AND STORED AND MUST BE TERMINATED AS SHOWN.

- OPTIONS:
- (R) 1A KTS
  - (S) 1A1 OR 1A2 KTS
  - \* INSULATE AND STORE

Fig. 11—Connections for Adding Internal Speakerphone to 2671B1M Telephone Set

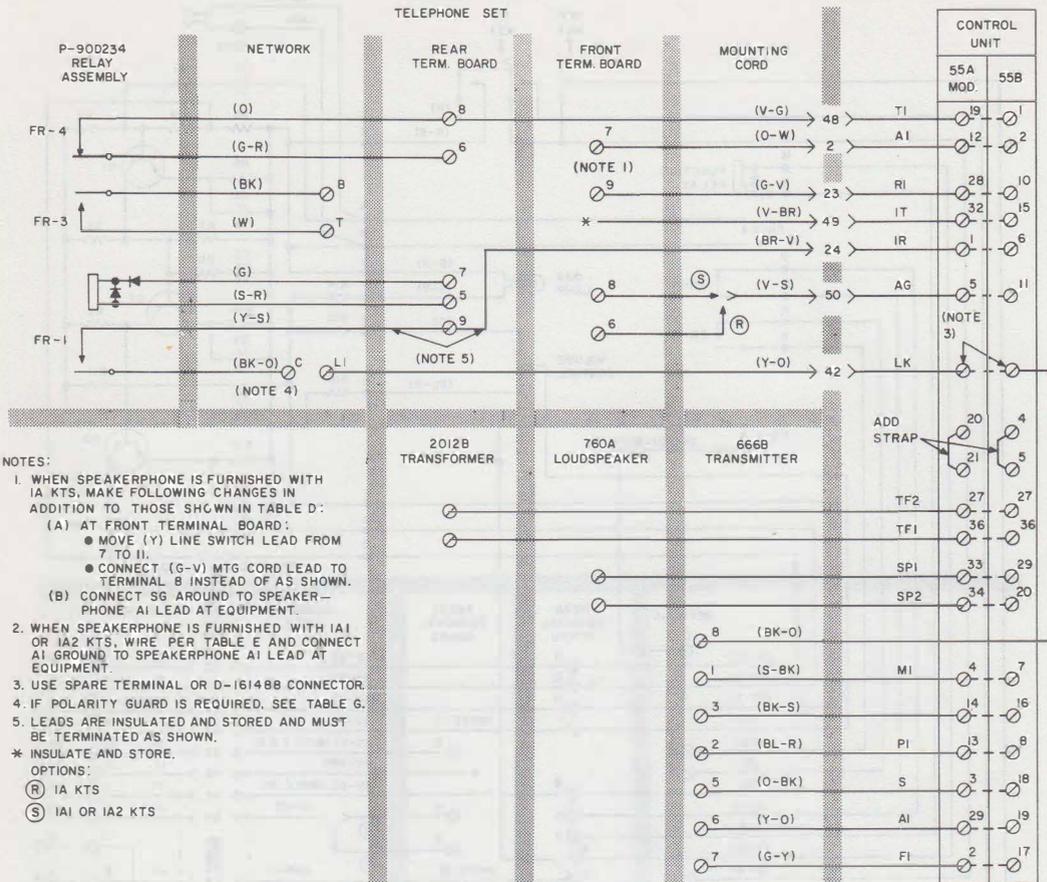


Fig. 12—Connections for Adding External Speakerphone to 2671B1M Telephone Set

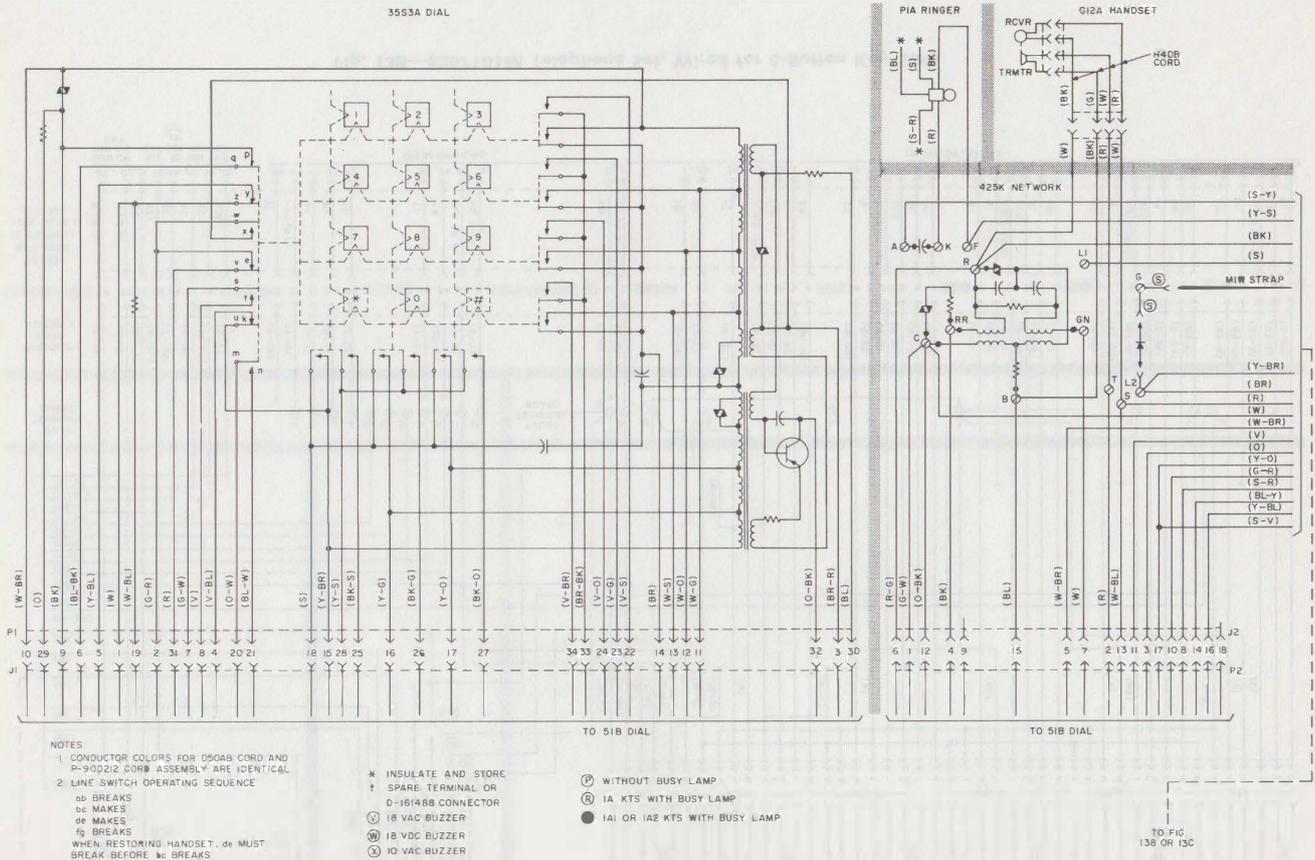


Fig. 13A—2671B1M Telephone Set, Connections

FROM FIG 13A

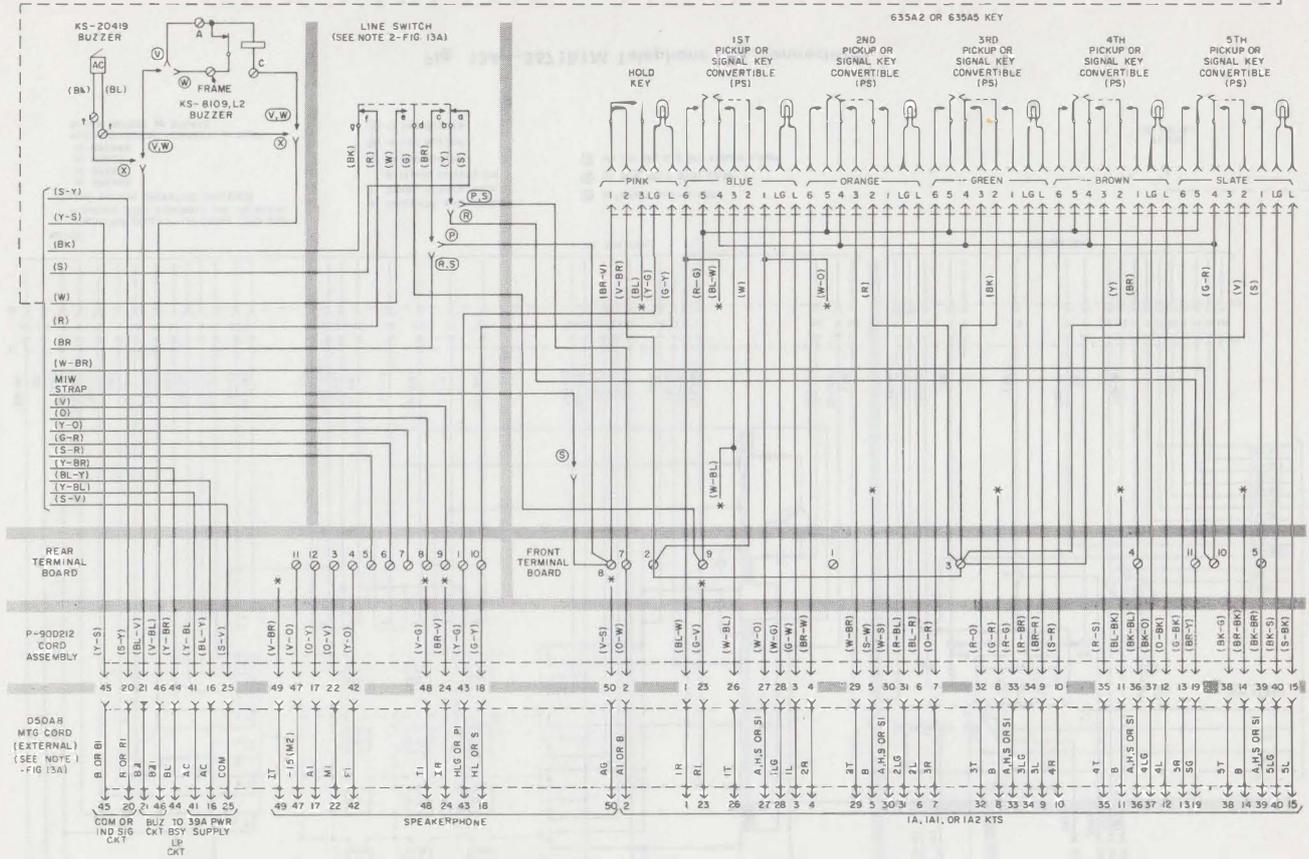
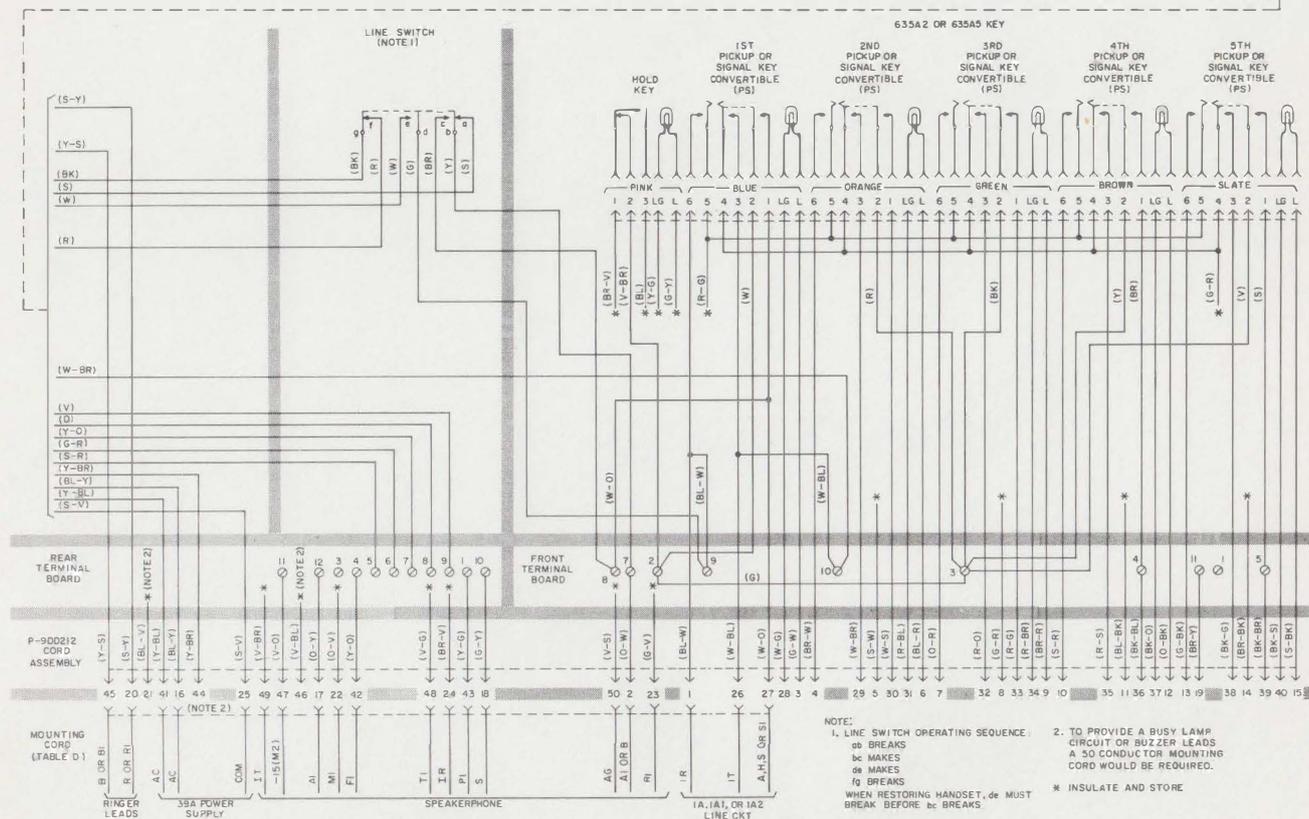


Fig. 13B—2671B1M Telephone Set, Wired for 6-Button Key Set



NOTE:  
 1. LINE SWITCH OPERATING SEQUENCE:  
 ♂♂ BREAKS  
 ♂♂ MAKES  
 ♀♀ BREAKS  
 ♀♀ MAKES  
 WHEN RESTORING HANSET, ♂♂ MUST BREAK BEFORE ♀♀ BREAKS  
 2. TO PROVIDE A BUSY LAMP CIRCUIT OR BUZZER LEADS A 50 CONDUCTOR MOUNTING CORD WOULD BE REQUIRED.  
 \* INSULATE AND STORE

Fig. 13C—2671B1M Telephone Set, Wired for Single Line Service