72-TYPE STATION DIALS

IDENTIFICATION, CONNECTIONS, AND MAINTENANCE

1. GENERAL

1.01 This practice contains information on the 72C3A manufacture discontinued (MD), 72D3A (MD), 72E3A (MD), 72H3A, 72J3A, 72K3A, Z72H3AE, Z72J3AE, Z72K3AE, Z72JG3A, Z72JG3B, Z72JG3AE, and Z72JG3BE dials (Fig. 1 through 9 and Table A).
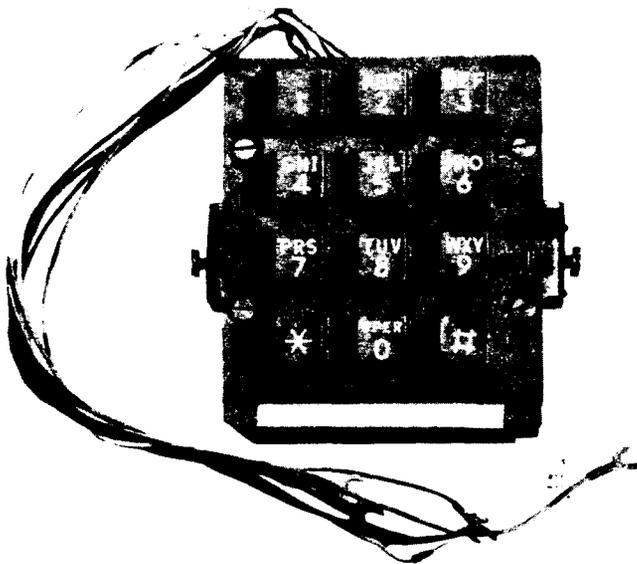

Fig. 1—72C3A (MD) Dial, Front View

1.02 The reasons for reissuing this practice are listed below. Revision arrows are used to emphasize the more significant changes.

- Add information on Z72H3AE, Z72J3AE, Z72K3AE, Z72JG3A, Z72JG3B, Z72JG3AE, and Z72JG3BE dials.

- Show how to disable the built-in polarity guard in the Z72JG3A, Z72JG3B, Z72JG3AE, and Z72JG3BE dials.
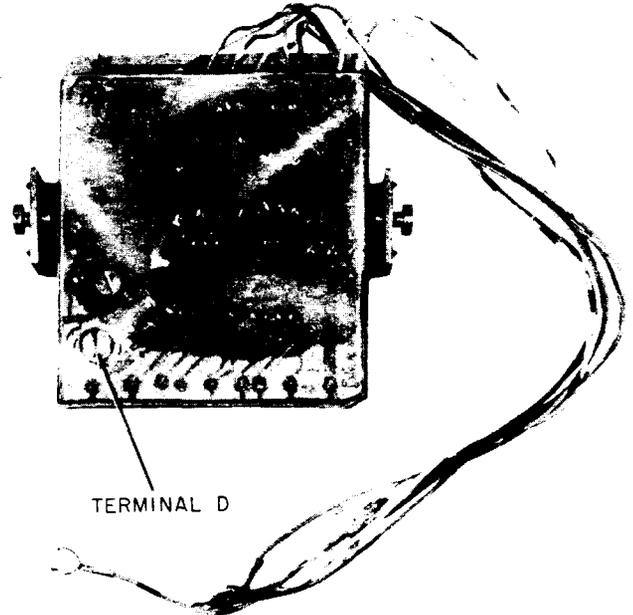

TERMINAL D

Fig. 2—72C3A (MD) Dial, Rear View

1.03 The 72C3A (MD) dial replaces the 35A3A, 35Y3A, and 35Y3D dials used in 2500- and 2554-type telephone sets. The 72D3A (MD) dial replaces the 35AH3D dial used in some DESIGN LINE® decorator telephones. The 72E3A (MD) dial replaces the 35BB3D dial used in TELESTAR® telephone (DESIGN LINE decorator telephone).

Before replacing a 35-type dial (Table B) with a 72-type dial, determine if a polarity guard has been installed in conjunction with the 35-type dial. Where no polarity guard exists, remove the 35-type dial and refer to Table C for 72-type dial connections and handset cord jack lead connections. If a polarity guard exists, it must be removed and the telephone set wiring arranged to agree with
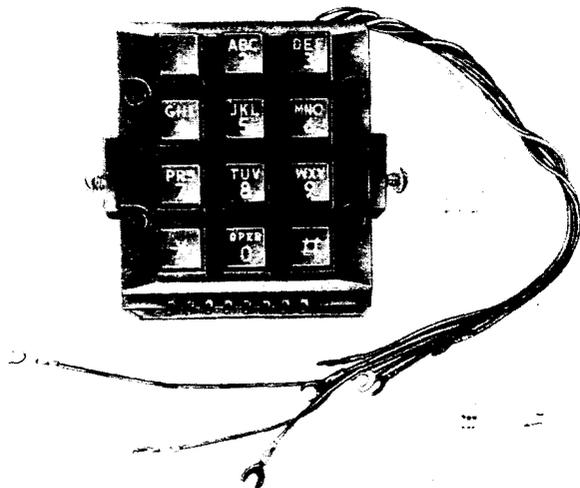
Fig. 3—72H3A Dial, Front View
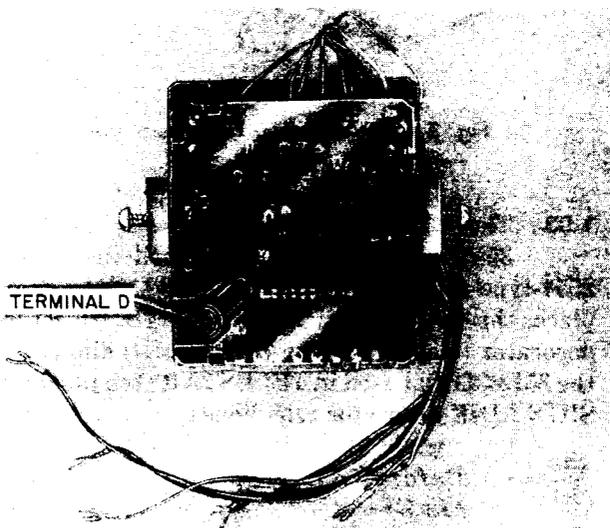

TERMINAL D

Fig. 4—72H3A Dial, Rear View

the factory wiring before a polarity guard was installed. Refer to appropriate telephone set connection section in Division 502 for 2500- and 2554-type telephone sets and Division 503 for DESIGN LINE decorator telephone.

1.04 The 72H3A, 72J3A, and 72K3A dials replace the 72C3A (MD), 72D3A (MD), and 72E3A (MD) dials, respectively. These dials are similar except for the mounting brackets, switch plate, and printed circuit board materials used in manufacture.

◆**1.05** The Z72H3AE, Z72J3AE, and Z72K3AE dials are the same as the 72H3A, 72J3A, and 72K3A dials, respectively, except they provide electromagnetic interference (EMI) protection.◀

◆**1.06** The Z72JG3A, and Z72JG3B dials are equipped with a built-in polarity guard which can easily be disabled to provide toll restriction capability.◀

◆**1.07** The Z72JG3AE and Z72JG3BE dials are the same as the Z72JG3A and Z72JG3B dials, respectively, except they meet the needs for toll restriction and provide EMI protection.◀

2. IDENTIFICATION

A. Purpose

2.01 The 72-type dial is an electronically switched 12-button touch-tone telephone dial. Ten of the pushbuttons are used for number or number and letter calling and two pushbuttons designated ✳ and # are for special services.

B. Ordering Guide

2.02 Order dial as follows:

- Dial, 72H3A (buttons and coverplate are gray, button graphics are white)

- Dial, 72J3A (buttons and coverplate are white, button graphics are black)

- Dial, 72K3A (buttons and coverplate are black, button graphics are white)

- ◆Dial, Z72JG3A or Z72JG3AE (buttons and coverplate are white, button graphics are black)◀

- ◆Dial, Z72JG3B or Z72JG3BE (buttons and coverplate are white, button graphics are black).◀

TERMINAL D

REAR VIEW FRONT VIEW
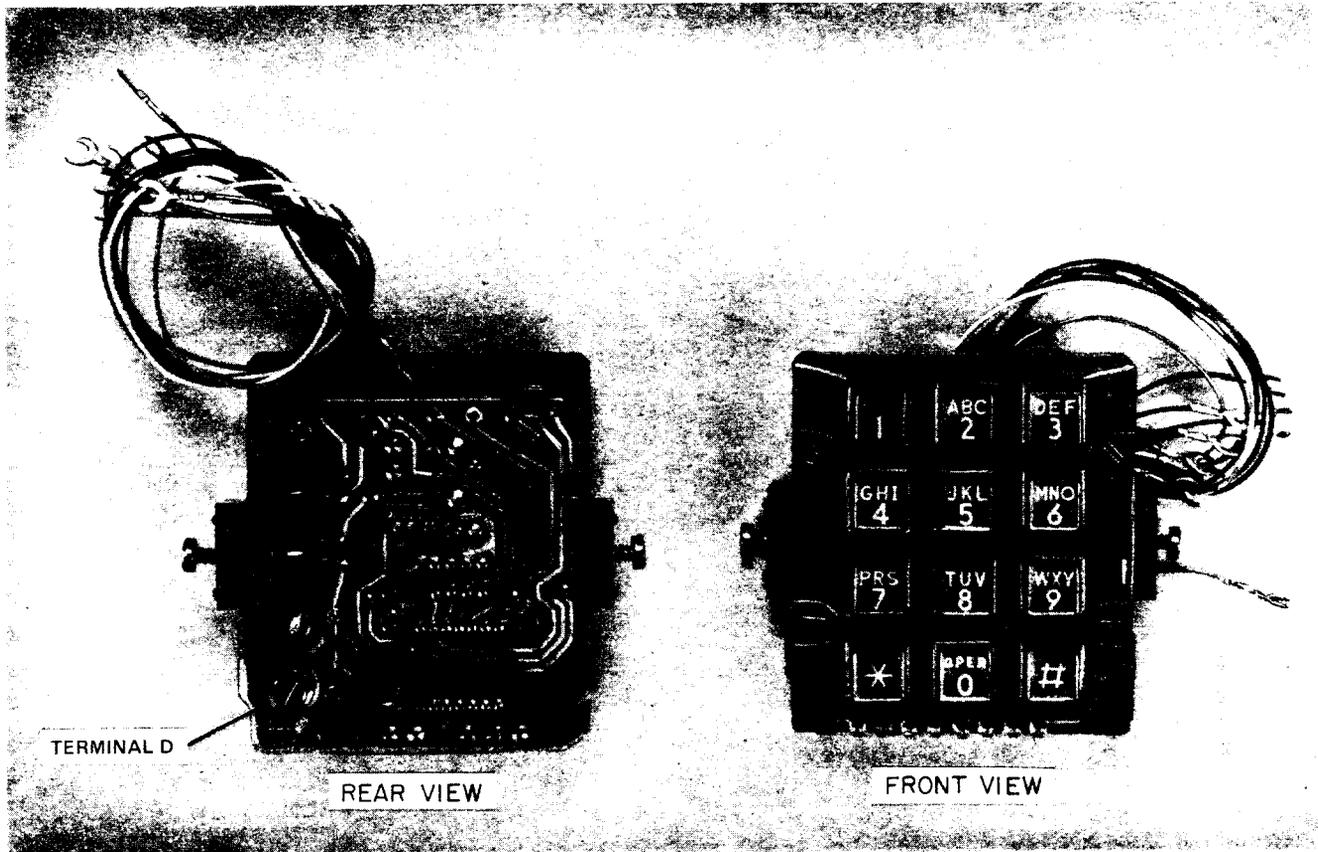
▶Fig. 5 — Z72H3AE Dial◀

C. Design Features

2.03 Each of the pushbuttons, when operated, generates a dual tone multifrequency signal distinctive to that button. Figure 10 indicates the frequencies for each button. Both the signaling and common switch functions are provided by the 677-type (Fig. 11 through 16) hybrid integrated circuit (HIC).

> *A feature that is recognizable to the user of this dial is the "feel" of the short travel button which operates a click disc switch similar to that used on many calculators.*

2.04 The 72-type dial contains a polarity guard eliminating the possibility of improper operation due to line reversals.

▶**2.05** The built-in polarity guard in the Z72JG3A, Z72JG3B, Z72JG3AE, and Z72JG3BE can be disabled by cutting a strap. See paragraph 4.04 and Fig. 6, 7, 8, and 9.◀

2.06 Each dial has eight spade-tipped leads (Fig. 11, 12, 13, and 14) for connections to the telephone set network and one screw terminal (D) located on the back side of the dial (Fig. 2, 4, 5, and 7) where a line switch lead terminates. ▶The Z72JG3B and Z72JG3BE dials have a cable assembly for connections to the telephone set instead of spade-tipped leads and terminal D (Fig. 15 and 16).◀

3. CONNECTIONS

3.01 Connect the 72-type dial and make the necessary telephone set wiring connections in accordance with Table C.

POLARITY
GUARD
ASSEMBLY

REAR VIEW

TERMINAL D

FRONT VIEW
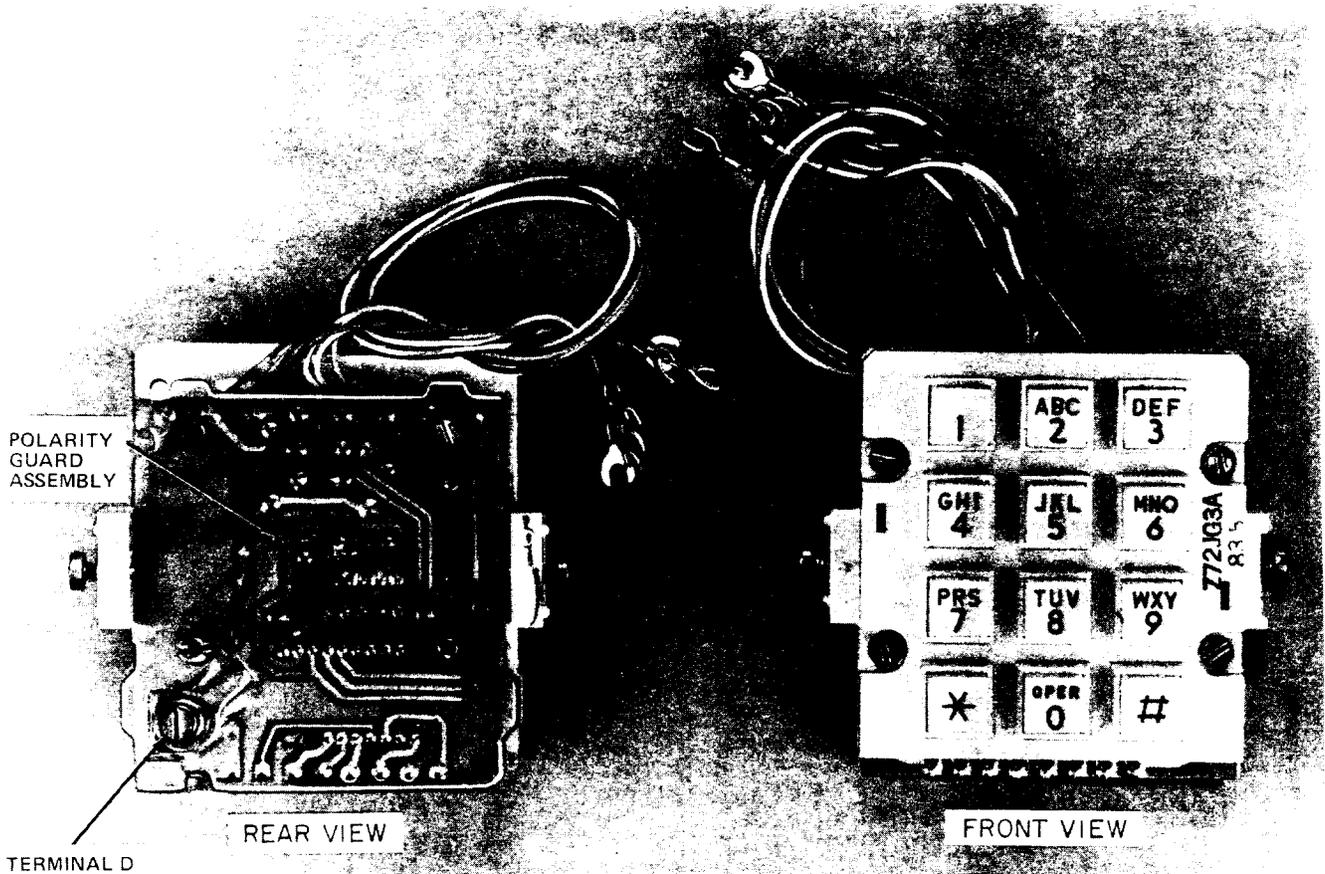
▶Fig. 6—Z72JG3A Dial◀

Note: Refer to READ in paragraph 1.03 before attempting to connect the 72-type dial.

4. MAINTENANCE

There are no field adjustments for the 72-type dial (except paragraph 4.04). Maintenance consists only of determining if the dial is defective.

4.01 To determine if a dial is defective, proceed as follows.

(1) Verify wiring for secure and correct connections.

(2) Check for presence of dial tone. If no dial tone is heard, make test with 1013A or equivalent hand test set across incoming CO line to telephone set. If dial tone is heard, make normal tests of telephone set components as described in appropriate sections.

(3) Break dial tone by dialing a digit as prescribed by local instructions. If unable to break dial tone, replace the dial.

(4) Check all buttons for tone feedback to the receiver. If feedback tones are not present, replace dial.

4.02 To test dial frequency and amplitude outputs, perform the following.

(1) Dial local number for testing touch-tone telephone dials, or dial local test desk and request access to the dial-test circuit.

POLARITY
GUARD
STRAP

TERMINAL D

REAR VIEW

FRONT VIEW
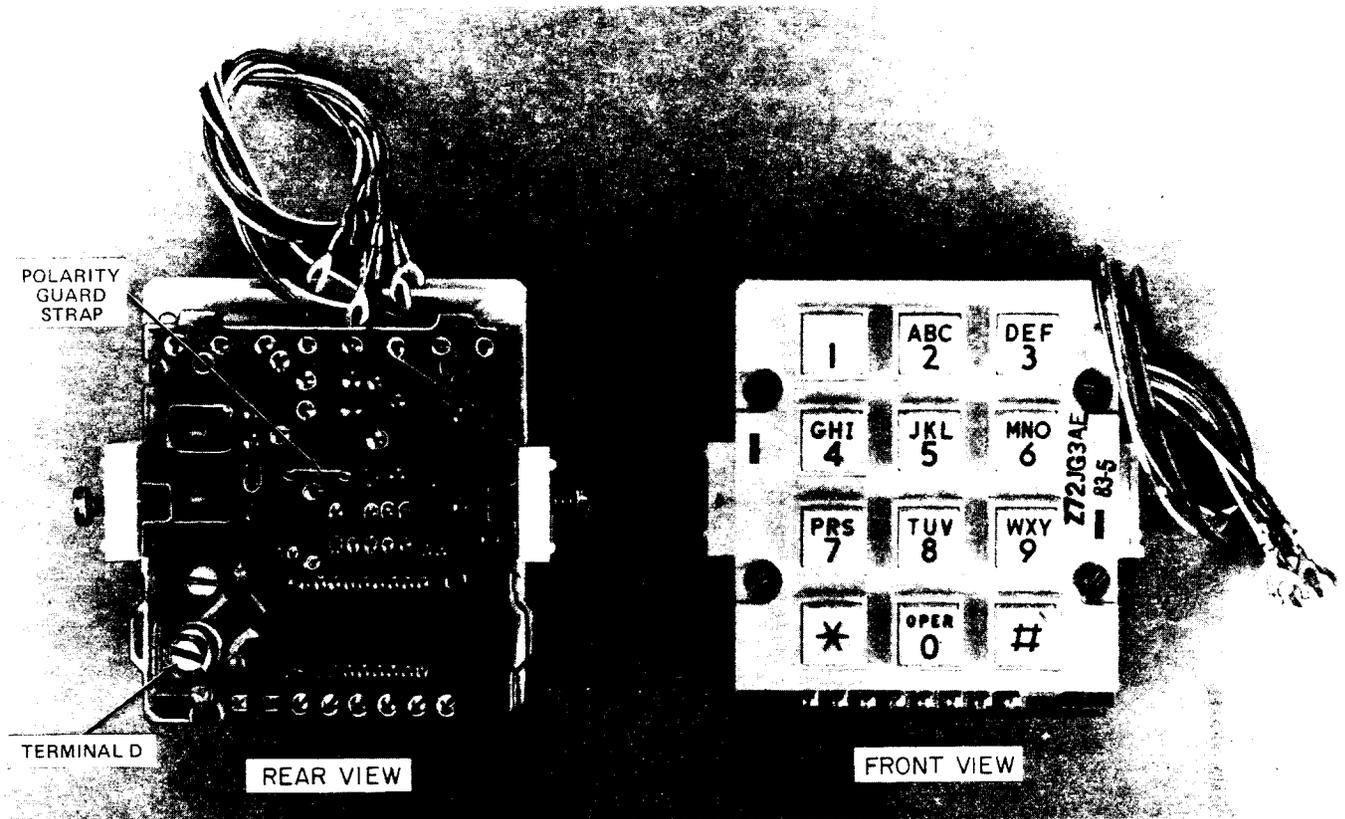
♦Fig. 7 — Z72JG3AE Dial♦

(2) When second dial tone is heard, dial appropriate code for testing 12-button dials, dial digits 1 through 9, and then ✱, 0, and #.

4.03 Replace dial if it fails to meet the tests.

**♦4.04** To disable the polarity guard in the Z72JG3A, Z72JG3AE, Z72JG3B, or Z72JG3BE dial, remove the strap as follows:

(1) Remove clear plastic cover from the dial.

(2) The jumper, located approximately in the center of the printed wiring board, is a 0.4 inch long bare wire.

(3) Take care that the wire does not fall into the set when you cut the wire at each end where the jumper enters the printed wiring board.

(4) Discard the wire removed from the circuit path.

(5) Replace the plastic cover on the dial.
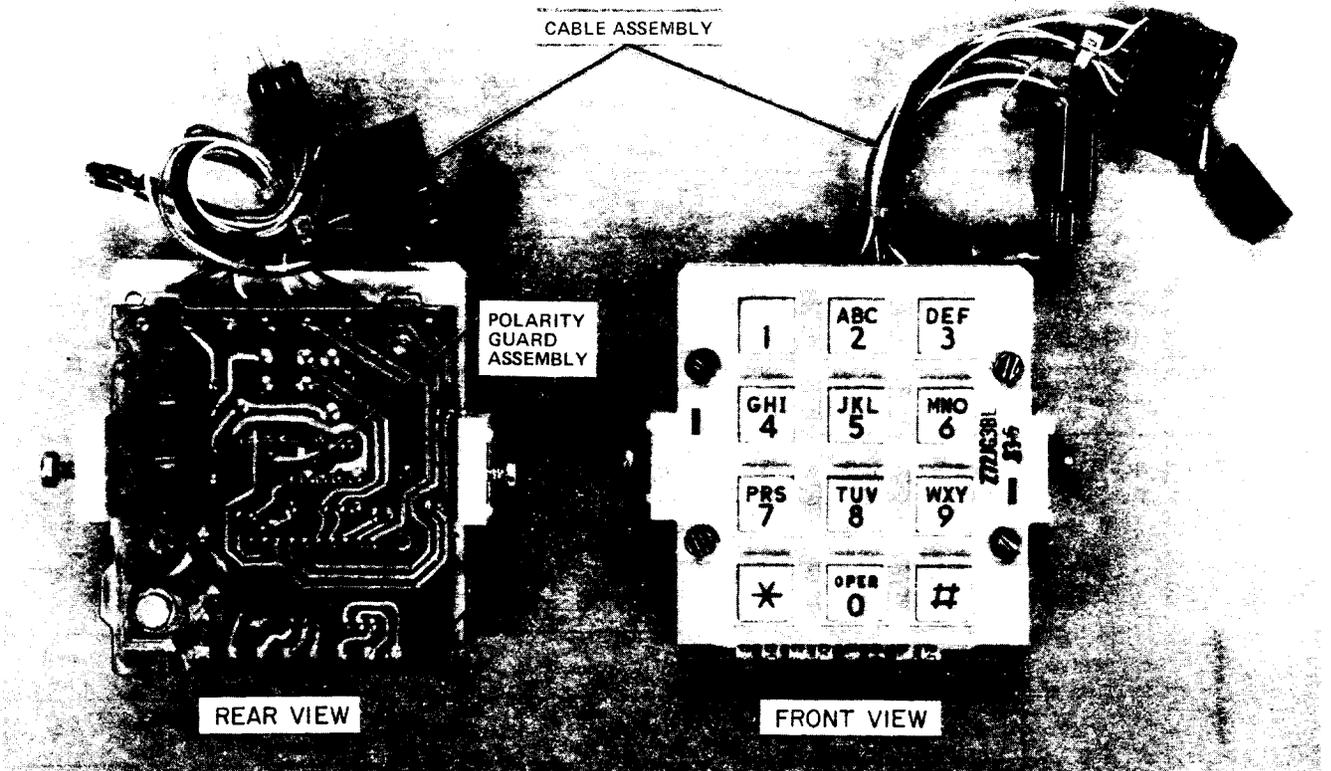
(6) Mark the set base "DIAL MOD".♦
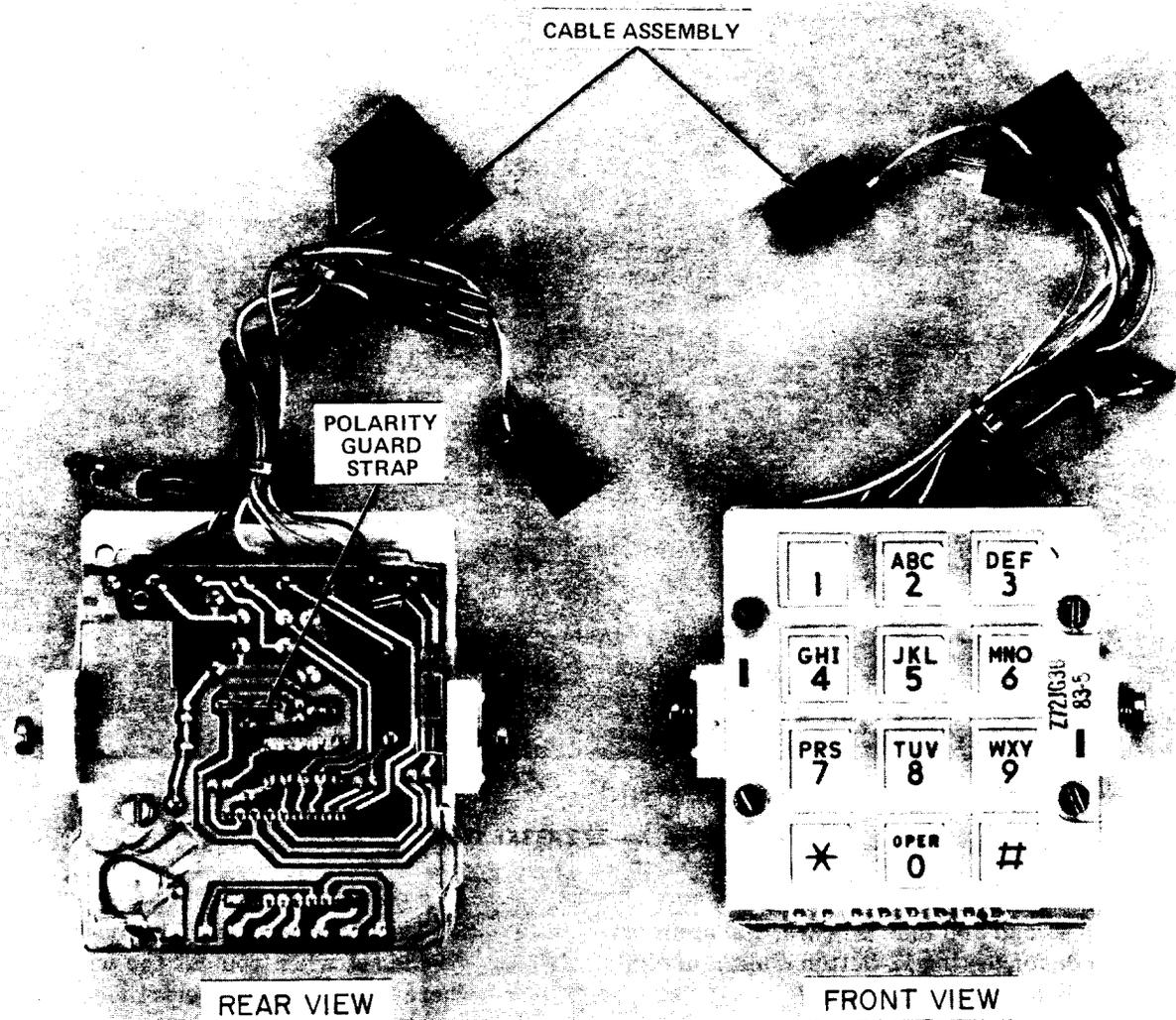
♦Fig. 8—Z72JG3B Dial◀

▶Fig. 9—Z72JG3BE Dial◀

		◆TABLE A◆				
		72-TYPE DIAL CODES AND CONFIGURATIONS				
CODE	COMCODE	TOLL RESTRICTION CONVERTIBLE	EMI PROTECTION	SPADE TIP CONNECTED	PLUG CONNECTED	COMMENTS
72H3A	103747457			X		Basic electronic switched dial, gray buttons, spade tipped
72J3A	103747812			X		White coverplate and white buttons
72K3A	103747820			X		Black coverplate and black buttons
Z72H3AE	103842316		X	X		Basic 72H3A with EMI protection
Z72J3AE	103845277		X	X		Basic 72J3A with EMI protection
Z72JG3A	103845251	X		X		White coverplate, buttons, and support plate
Z72JG3AE	103845269	X	X	X		Basic Z72JG3A with EMI protection
Z72JG3B	103843199	X			X	White coverplate, buttons, and support plate
Z72JG3BE	103843207	X	X		X	Basic Z72JG3B with EMI protection
Z72K3AE	103845285		X	X		Basic 72K3A with EMI protection

♦TABLE B♦

REPLACEMENT 72-TYPE DIALS FOR TELEPHONE SETS

TEL SET	EXISTING DIAL	NEW DIAL
15 AMS Console	35Y3A	*
101A3T	35F3A	*
2500MM	35Y3D	Z72JG3A
2500YM	35Y3D	Z72JG3A
2502BM	35Y3D	Z72JG3A
2514BM	35Y3D	Z72JG3A
2554BMP	35Y3D	Z72JG3A
2563HBMSG	35Y3A	Z72JG3A
2564HLMSG	35Y3A	Z72JG3A
2575AMG	35Y3A	Z72JG3A
2832BM	35AF3A	*
2832CM	35AF3A	*
2832DM	35AF3A	*
2832EM	35AF3A	*
2852AM	35AF3A	*
2853AM	35Y3A	*
2870A2M	35AG3A	*
2872A2M	35AG3A	*
2960A01M	35AT3A	*
2981A01	35AY3A/35AU3A	*
2981A02	35AY3A/35AU3A	*
2981A03	35AY3A/35AU3A	*
2983A01	35AU3A	*
2983A02	35AU3A	*
2991C01	35AY3A	Z72JG3B
2991C02	35AY3A	Z72JG3B
2991C04	35AY3A	Z72JG3B
2991C05	35AY3A	Z72JG3B
2991D01	35AY3A	Z72JG3B
2991D05	35AY3A	Z72JG3B
2992C01	35AY3A	Z72JG3B
2993C04	35AU3A	*
2993C01	35AY3A	Z72JG3B
2994C01	35AY3A	Z72JG3B
2500SM†	35AF3D	Z72JG3A
2504BMN†	35C3A	Z72JG3A
2565GKMS†	35AF3A	Z72JG3A
2565HKMS†	35AF3A	Z72JG3A
2565LKMS†	35AF3A	Z72JG3A
2568HAAMS†	35AF3A	Z72JG3A

* A compatible 72-type dial does not exist.
† These sets are speakerphone-compatible. When the 72-type dials are installed in them they are no longer compatible with speakerphones and must be recoded. When a set is recoded, a GA is added as a suffix to the telephone set code.
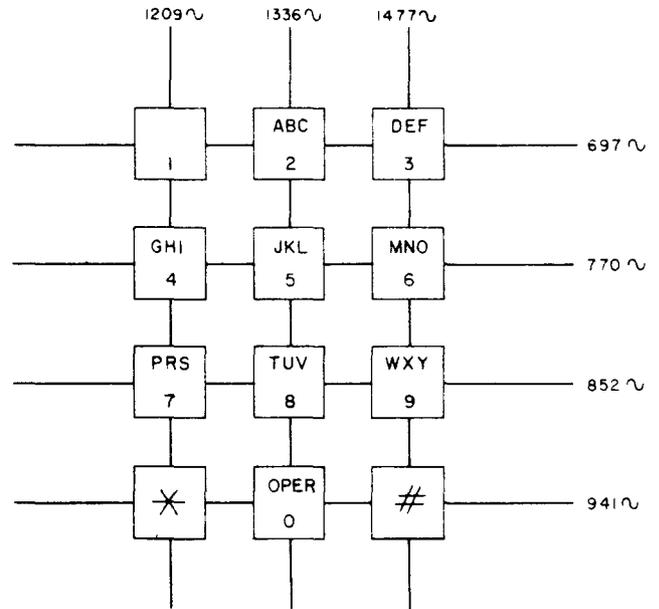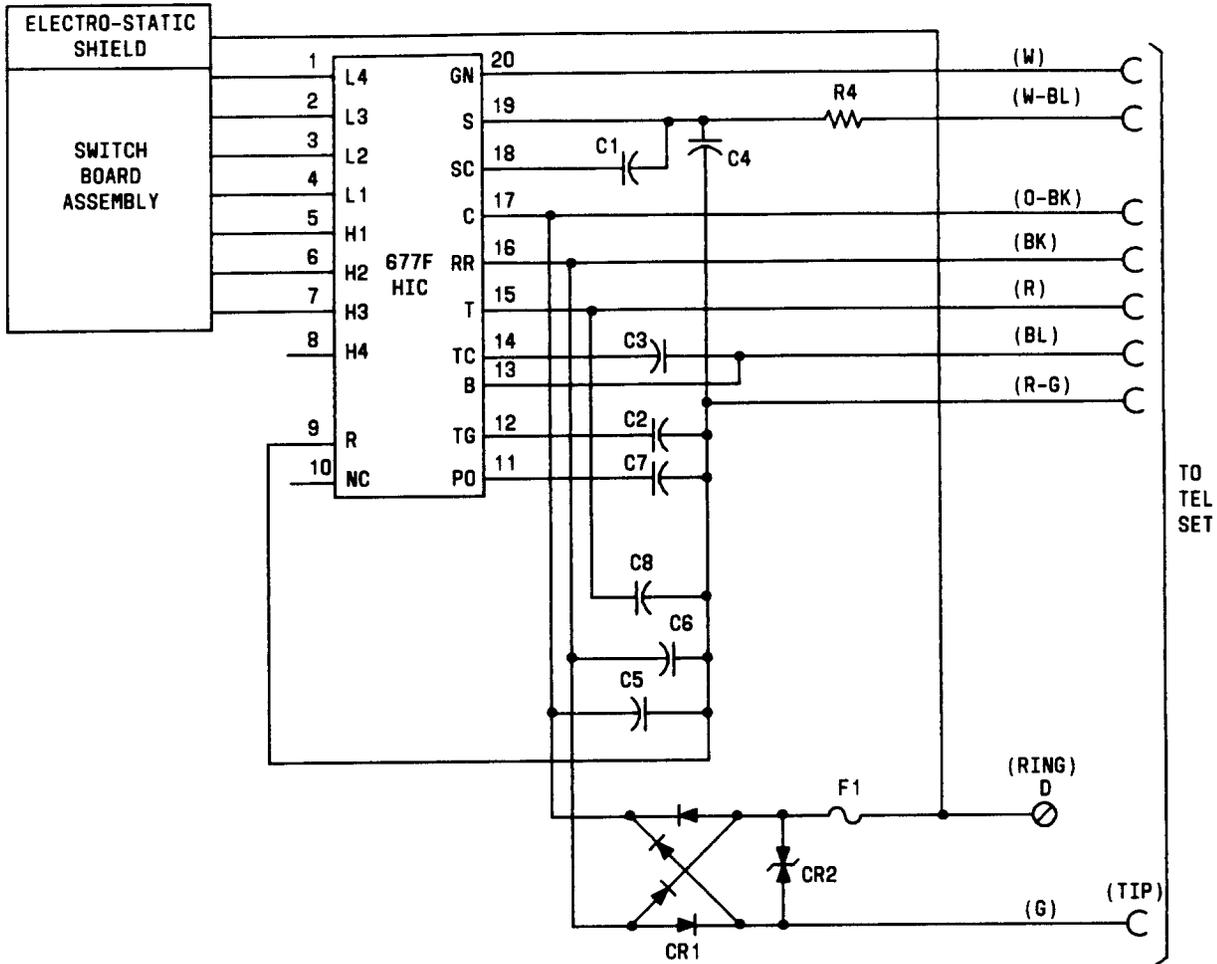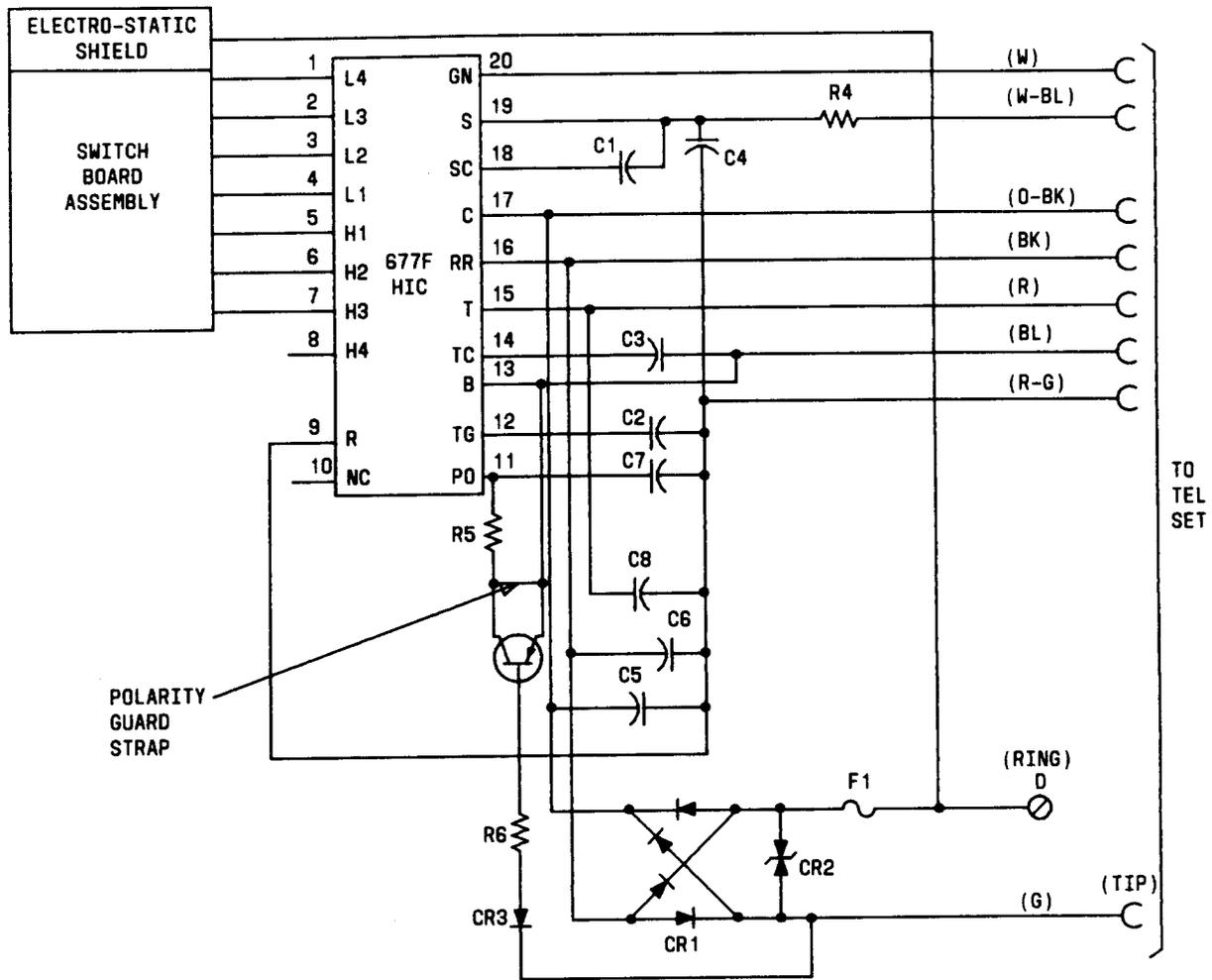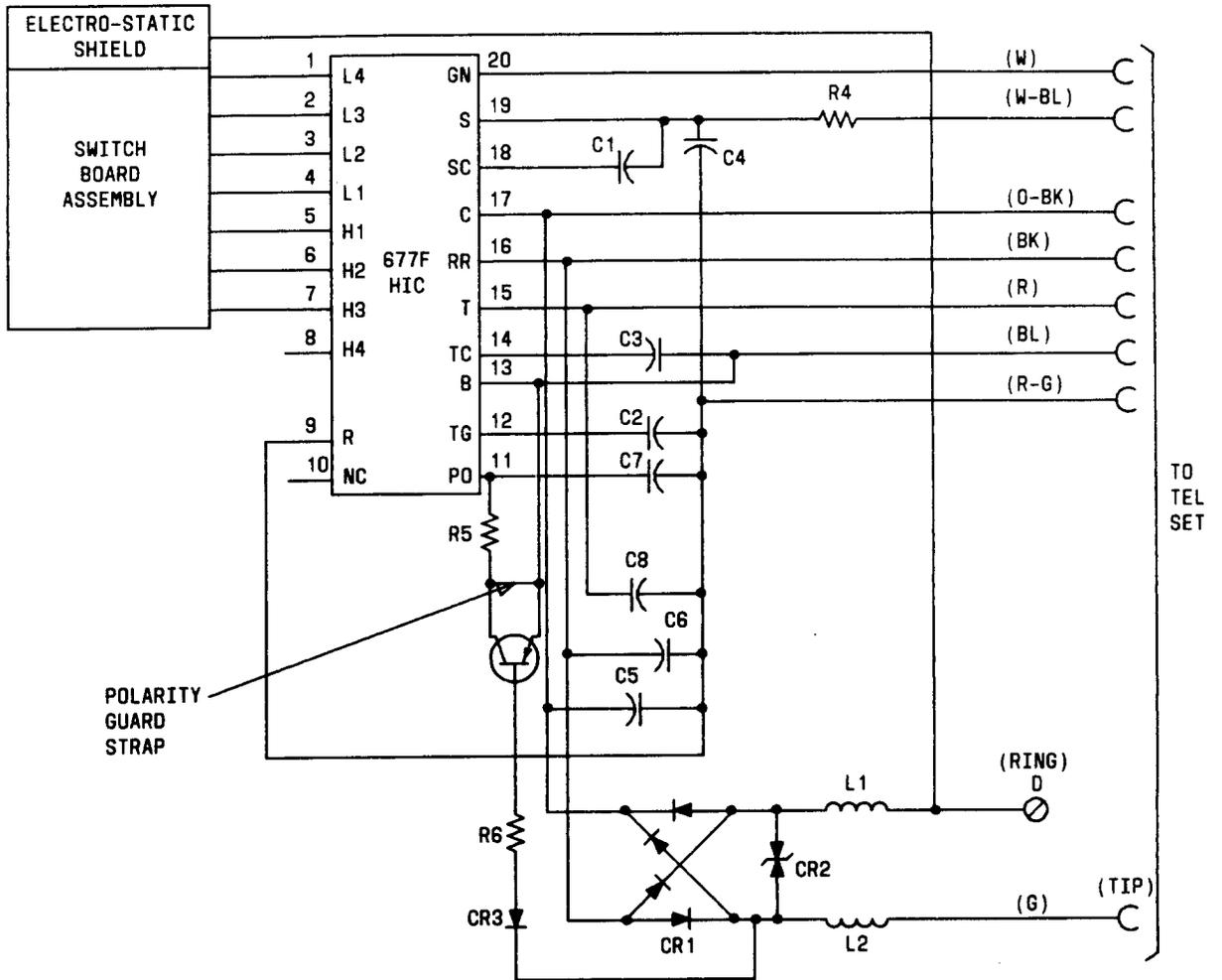

Fig. 10—72-Type Dial Frequencies

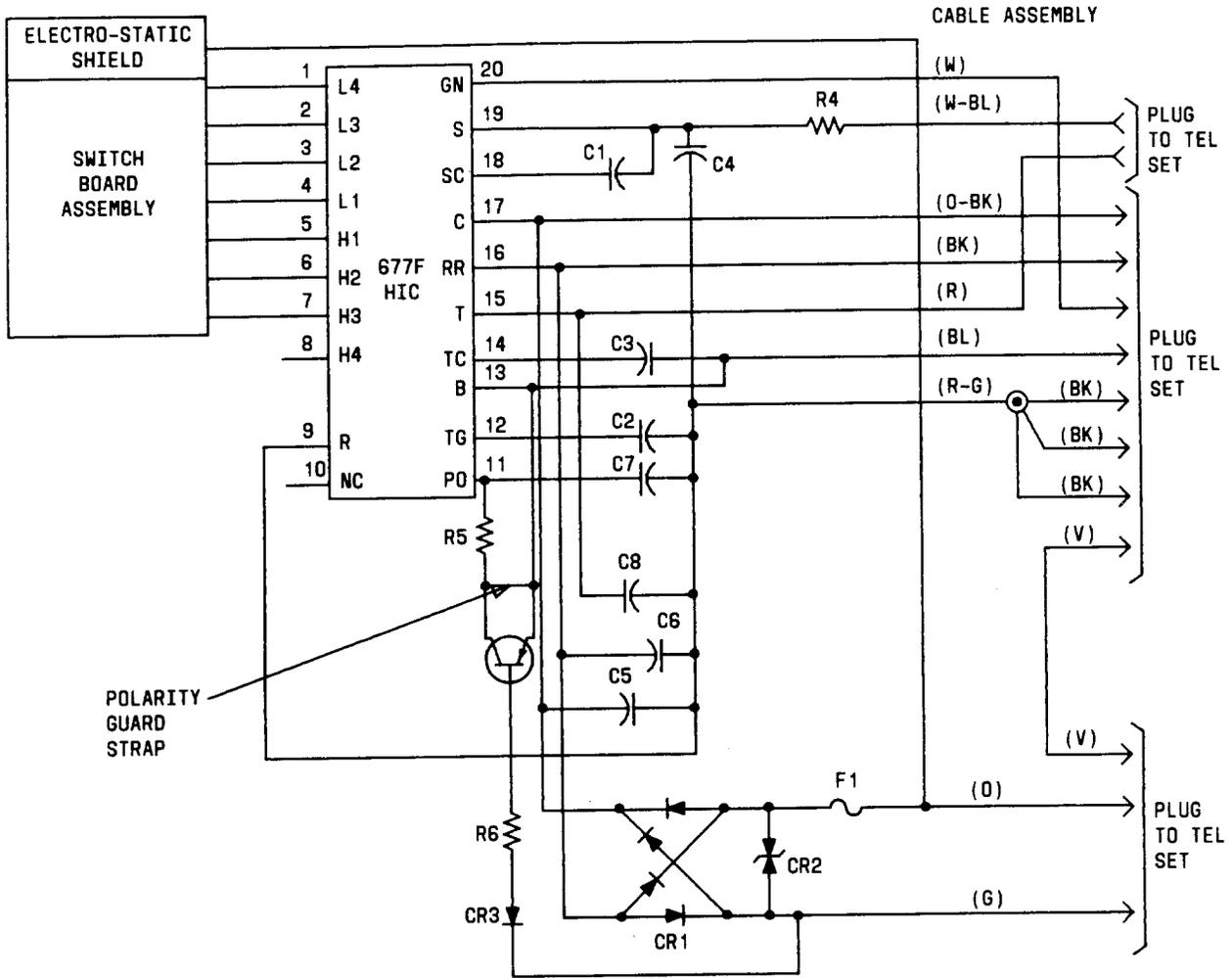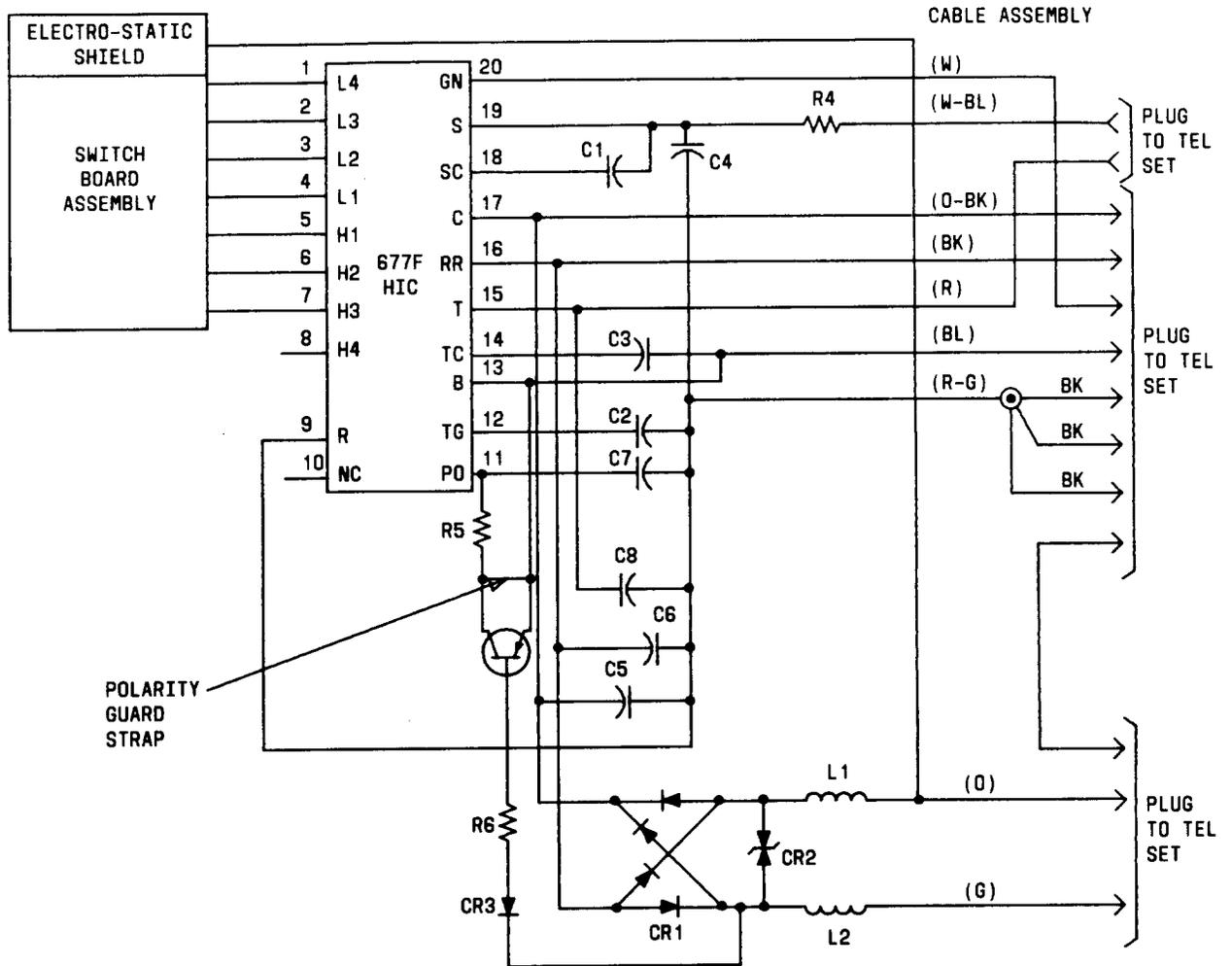**◆Fig. 11—72H3A, 72J3A, or 72K3A Dial, Schematic◆**

Fig. 12—Z72H3AE, Z72J3AE, or Z72K3AE Dial, Schematic

Fig. 13—Z72JG3A Dial, Schematic

♦Fig. 14—Z72JG3AE Dial, Schematic♦

Fig. 15 — Z72JG3B Dial, Schematic

▶Fig. 16—Z72JG3BE Dial, Schematic◀

◆TABLE C◆			
72-TYPE DIAL CONNECTIONS			
WIRE OR LEAD	**COLOR**	**REMOVE FROM NET. TERM.**	**CONNECT TO NET. TERM.**
72-Type Dial	(W)	—	GN
	(W-BL)	—	S
	(O-BK)	—	C
	(BK)	—	RR
	(R)	—	T
	(BL)	—	B
	(R-G)	—	R
	(G)	—	F†
Line Switch*	(BR)	C	D‡
616-Type Handset Cord Jack	(R)	T	R§
	(BK)	B	T
241B Amplifier¶	R	T	R
642A Headset Key¶	S-BK	B	T
	S-R	C	D‡

* In some telephone sets where this dial is used, this line switch lead may be a different color.

† Terminal L1 in 2563HBM or 2563HBMSG, L2 in 2565HKMS, or 2 on terminal strip in 2514BM.

‡ Dial terminal.

§ Terminal 9 in 2514BM or terminal 7 in 2563HBMG.

¶ 2514BM or 2563HBMSG only.