NETWORKS

1. GENERAL

1.01 This section covers information on current 425-, 4010-, and 4228-type networks used in most rotary and TOUCH-TONE® dial equipped telephone sets. The 4228-type network will be used to replace the 425- and 4010-type networks.

1.02 This section is reissued to:

- Show the 4228R network MD
- Add the 4228AC and 4228AD networks.

1.03 A typical example of each type network is shown in Fig. 1, 2, and 3, respectively.

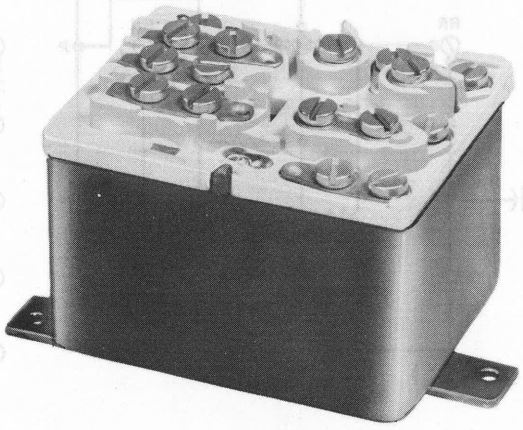


Fig. 1—Typical 425-Type Network



Fig. 2—Typical 4010-Type Network



Fig. 3—Typical 4228-Type Network

2. IDENTIFICATION

2.01 The networks covered in this section consist primarily of resistors, varistors, capacitors, and a transformer. The 425- and 4010-type networks are assembled in a metal case and wired to a terminal block which serves as the cover. The components are surrounded by a protective insulating compound. The components of the 4228-type network are assembled to a plastic terminal plate which also serves as the network framework.

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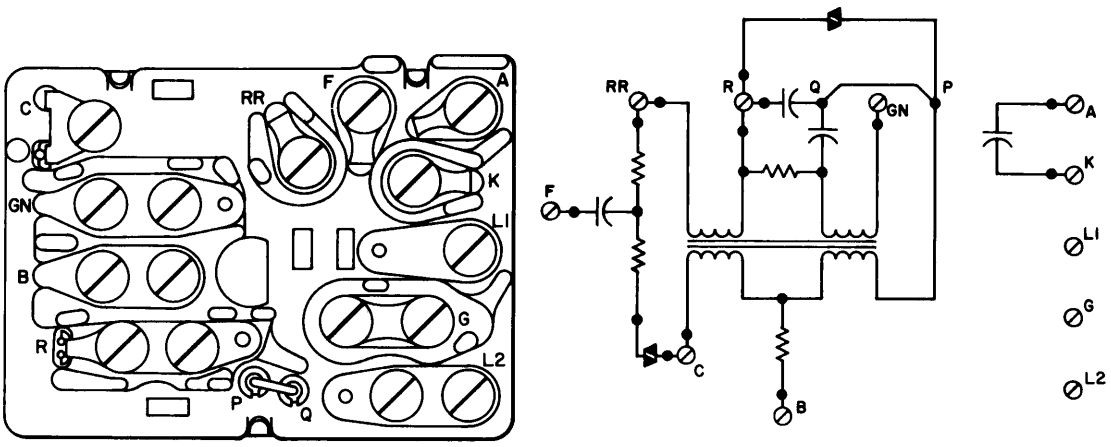


Fig. 4—425D Network, Terminal Layout and Schematic

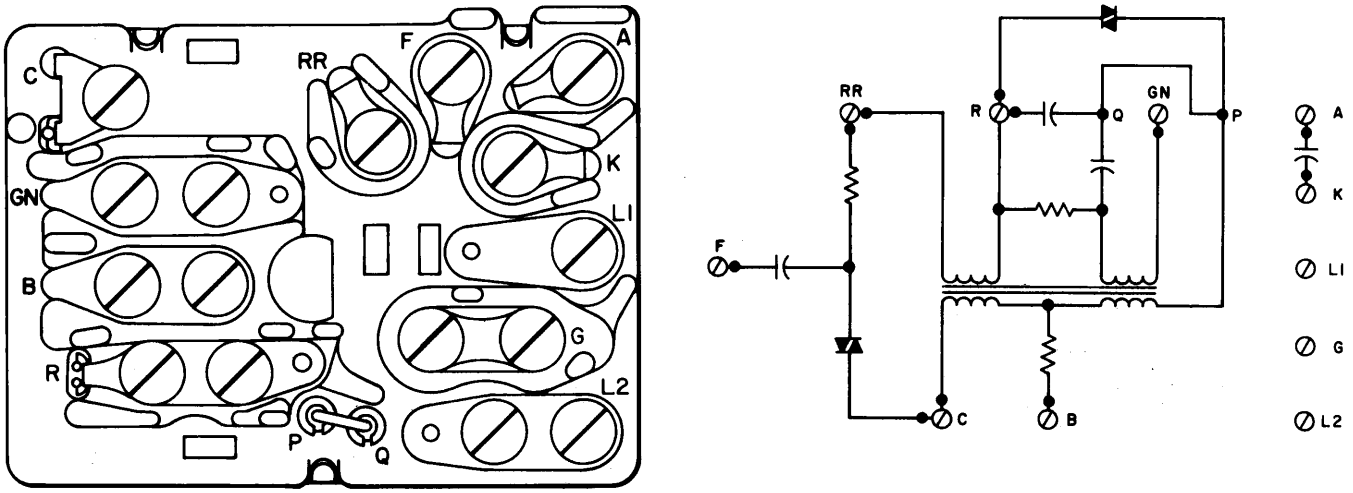


Fig. 5—425E Network, Terminal Layout and Schematic

2.02 These networks provide transmission circuit elements, balancing network for anti-sidetone telephone sets, ringing capacitor, and a radio interference-suppression filter for most telephone sets.

2.03 Table A lists the different codes and features.

3. 425-TYPE NETWORKS

3.01 The 425D network (Fig. 4):

(a) Is intended for use in rotary dial equipped telephone sets.

(b) Is intended for use in telephone sets equipped with an amplifier for use with 52- or 53-type operators headset.

3.02 The 425E network (Fig. 5):

(a) Is intended for use in rotary dial equipped telephone sets.

(b) Is equivalent to the 4228A network.

(c) Replaces 425B network.

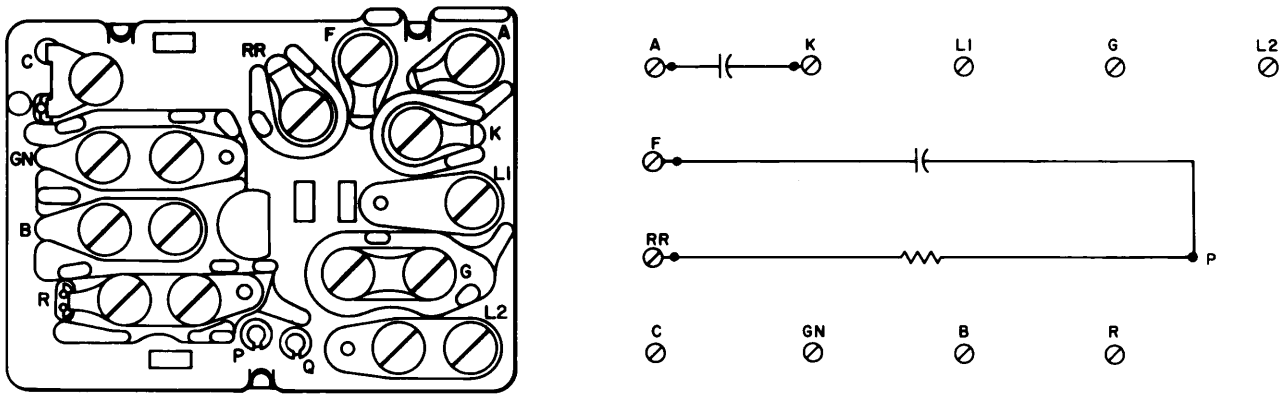


Fig. 6—425F Network, Terminal Layout and Schematic

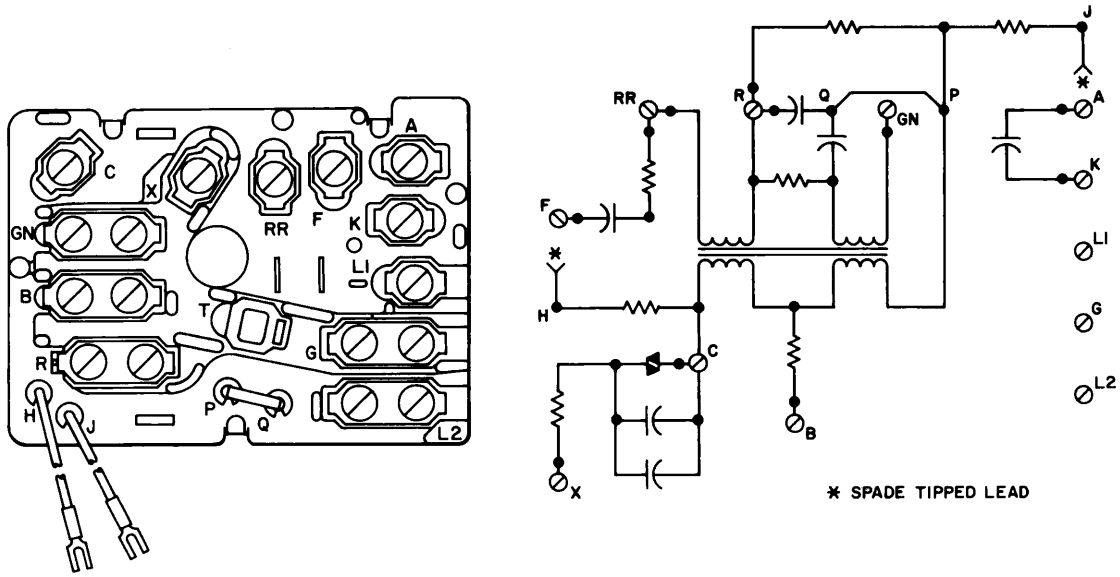


Fig. 7—425J Network, Terminal Layout and Schematic

3.03 The 425F network (Fig. 6):

(a) Is intended for use in special rotary dial equipped telephone sets.

(b) Does not contain transmission circuit elements or antisidetone balancing network.

(c) Is equivalent to the 4228E network.

3.04 The 425J network (Fig. 7):

(a) Is same as the 425E network, except that equalizing varistors are replaced with resistor strap options for speech equalization.

(b) Is a distributing house substitute for the 425B, E, G, and K networks in high radio frequency interference locations.

(c) Requires a strapping option for use with LC-type TOUCH-TONE dials.

(d) Is equivalent to the 4228D network.

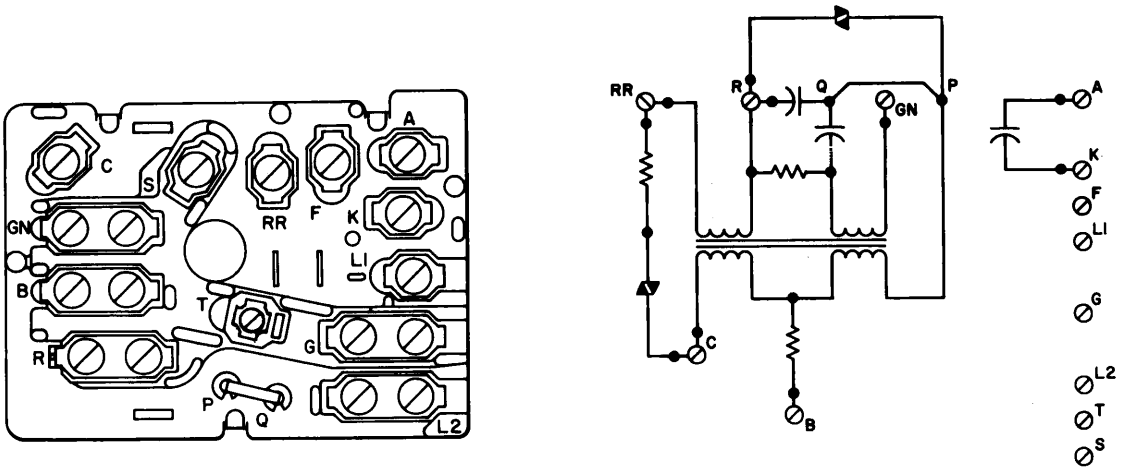


Fig. 8—425K Network, Terminal Layout and Schematic

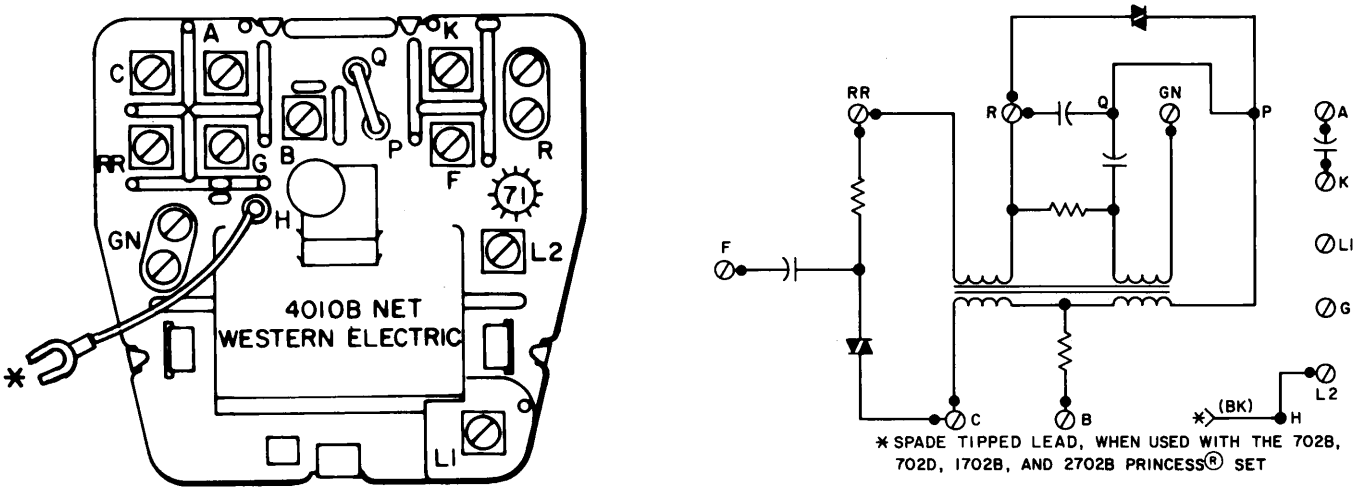


Fig. 9—4010B Network, Terminal Layout and Schematic

3.05 The 425K network (Fig. 8):

(a) Has S and T terminals.

(b) The dial pulse capacitor at terminal F is omitted.

(c) Is intended for use in TOUCH-TONE dial equipped telephone sets.

(d) Is equivalent to the 4228B network.

(e) Replaces 425G network.

4. 4010-TYPE NETWORK

4.01 The 4010B network (Fig. 9):

(a) Provides transmission equalization for varying loop lengths, ringing capacitor, balancing network for antisidetone telephone sets.

(b) Intended for use in rotary dial equipped telephone sets.

(c) Is equivalent to the 4228F network.

(d) Replaces 4010A network.

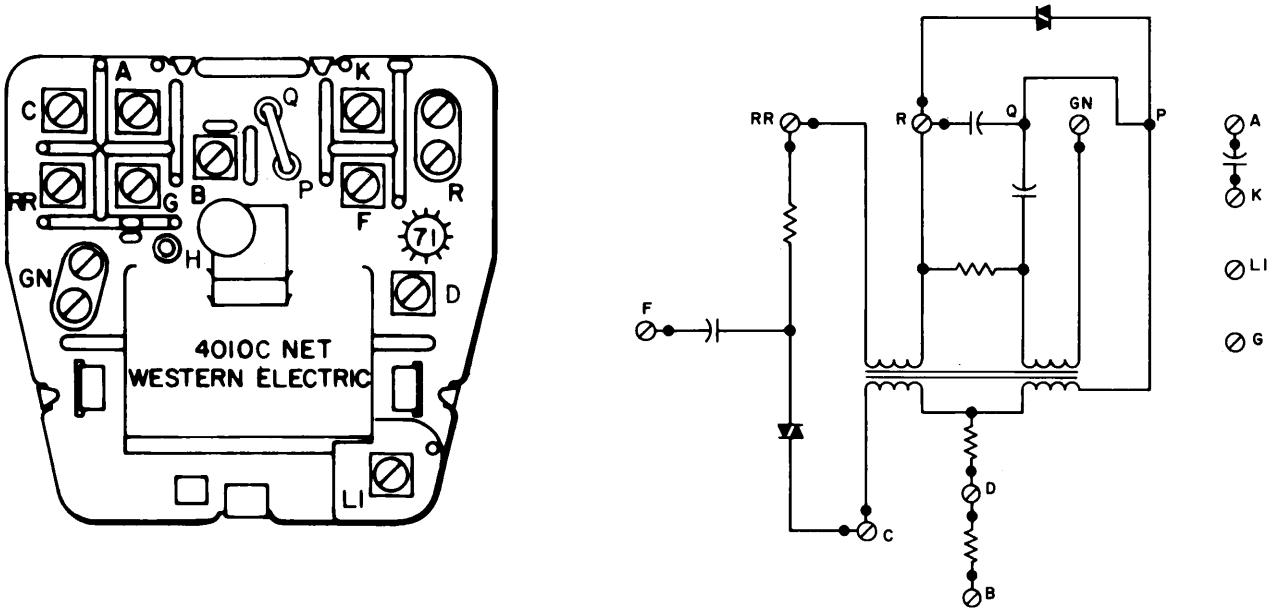


Fig. 10—4010C Network, Terminal Layout and Schematic

4.02 The 4010C network (Fig. 10):

(a) Is intended for use on 1A/2A rotary or TOUCH-TONE dial equipped coin telephone sets that are also equipped with a chute transmitter.

(b) Can be replaced by a 4228P in those coin sets not equipped with a chute transmitter.

4.03 The 4010D network (Fig. 11):

(a) Is same as the 4010B network, except the dial pulse capacitor at terminal F is omitted.

(b) Intended for use in TOUCH-TONE dial equipped telephone sets.

(c) Is equivalent to the 4228G network.

4.04 The 4010E network (Fig. 12):

(a) Is same as the 4010B network, except that equalizing varistors are replaced with strap options for speech equalization.

(b) Requires a strapping option for use with LC-type TOUCH-TONE dials.

(c) Is a service center substitute for the 4010A, B, and D networks, in high radio frequency interference locations.

5. 4228-TYPE NETWORKS

5.01 The 4228A network (Fig. 13):

(a) Is intended to replace the 425E network.

(b) Preferred network for rotary dial telephone sets.

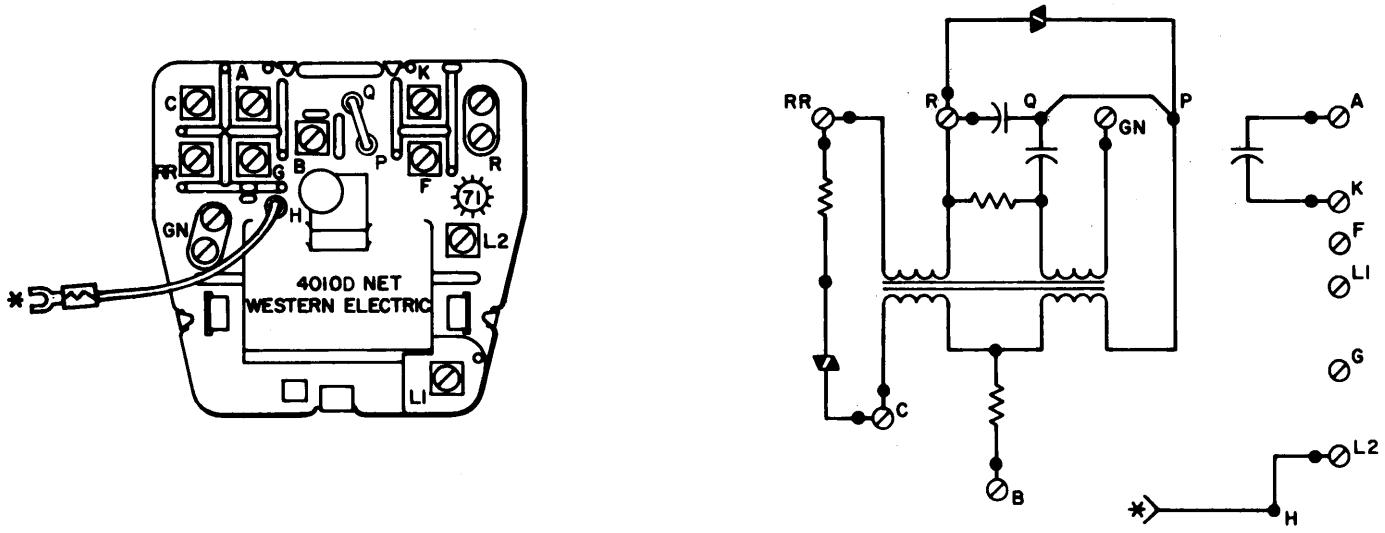
5.02 The 4228B network (Fig. 14):

(a) Is intended to replace the 425K network.

(b) Has S and T terminals.

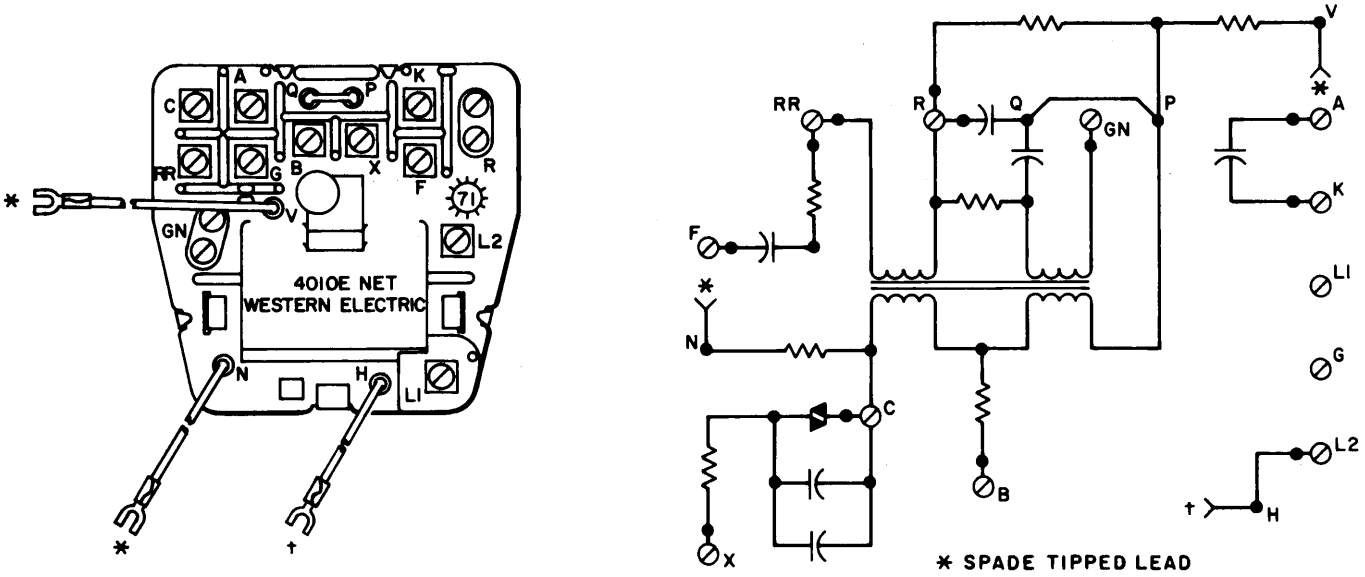
(c) The dial pulse capacitor at terminal F is omitted.

(d) Preferred network for TOUCH-TONE dial telephone sets.



* SPADE TIPPED LEAD, WHEN USED WITH THE 702B, 702D, 1702B AND 2702B PRINCESS® SETS.

Fig. 11—4010D Network, Terminal Layout and Schematic



† SPADE TIPPED LEAD, WHEN USED WITH THE 702B, 702D, 1702B, AND 2702B PRINCESS® SETS

* SPADE TIPPED LEAD

Fig. 12—4010E Network, Terminal Layout and Schematic

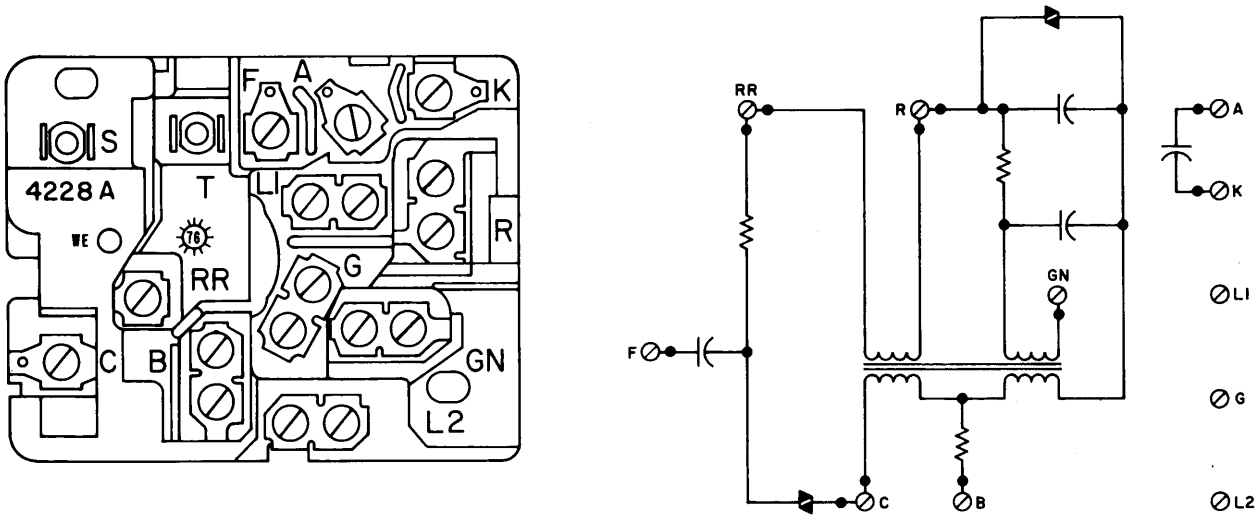


Fig. 13—4228A, F, M, P, S, U, AA, or AC Network Terminal Layout and Schematic

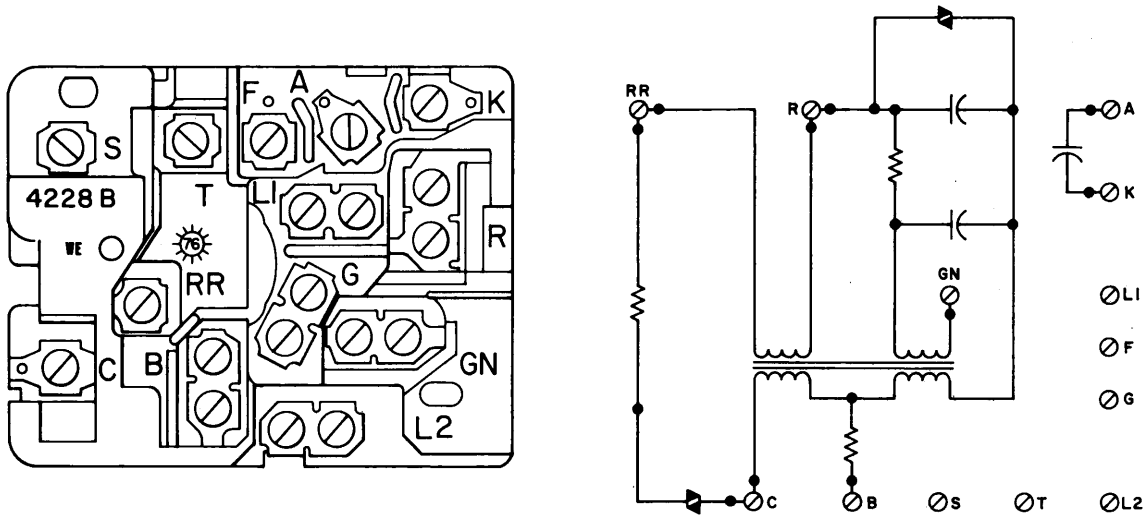


Fig. 14—4228B, G, K, L, N, T, Y, or AD Network, Terminal Layout and Schematic

5.03 The 4228C network (Fig. 15):

(a) Is intended to replace the 425D network.

(b) Is intended for use in rotary dial equipped telephone sets.

(c) Is intended for use in telephone sets equipped with an amplifier for use with 52- or 53-type operators headset.

5.04 The 4228D network (Fig. 16):

(a) Is intended to replace the 425J and 4010E networks.

(b) Is the same as the 4228A network, except that equalizing varistors are replaced with resistor strap options for such equalization.

(c) Is a service center substitute for the 425B, E, G, and K networks; the 4010A, B, and

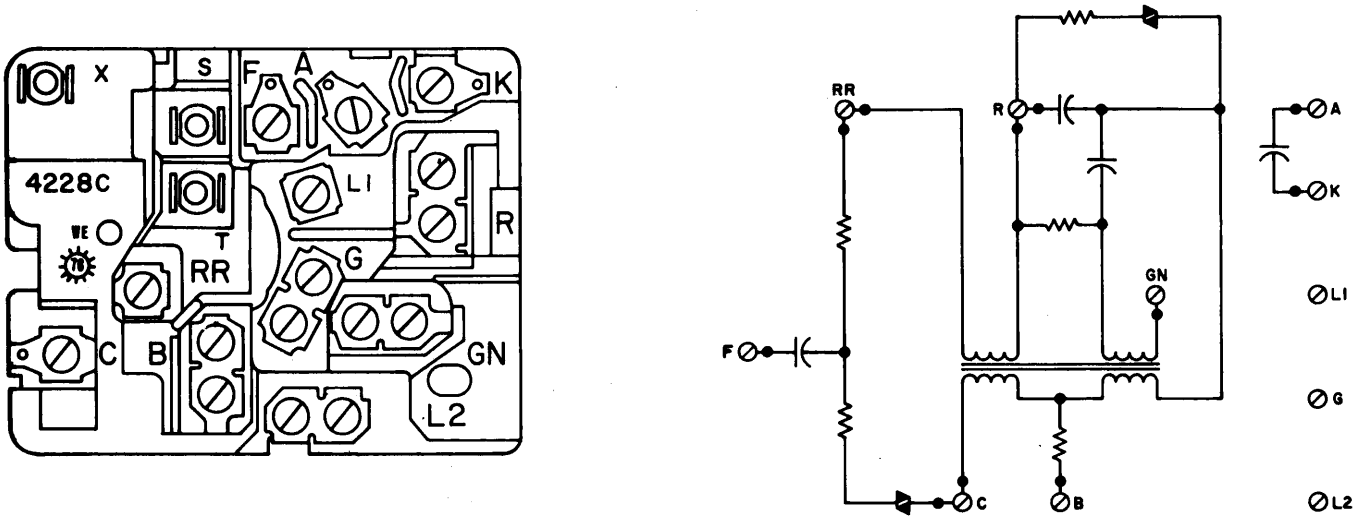


Fig. 15—4228C Network, Terminal Layout and Schematic

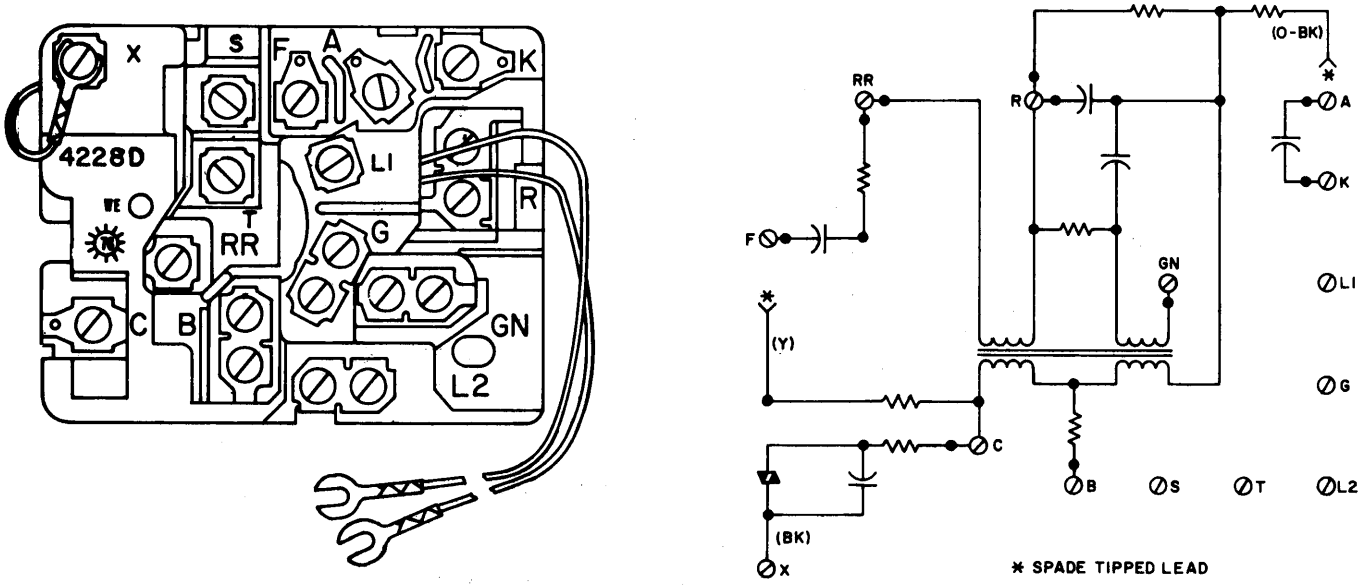


Fig. 16—4228D Network, Terminal Layout and Schematic

D networks; and for the 4228A, B, F, G, K, L, M, N, P, S, T, U, W, Y, and AA network in high radio frequency interference locations.

(d) Requires a strapping option for use with LC-type TOUCH-TONE dials.

(e) Does not have mounting brackets. Appropriate mounting brackets must be obtained at the service center.

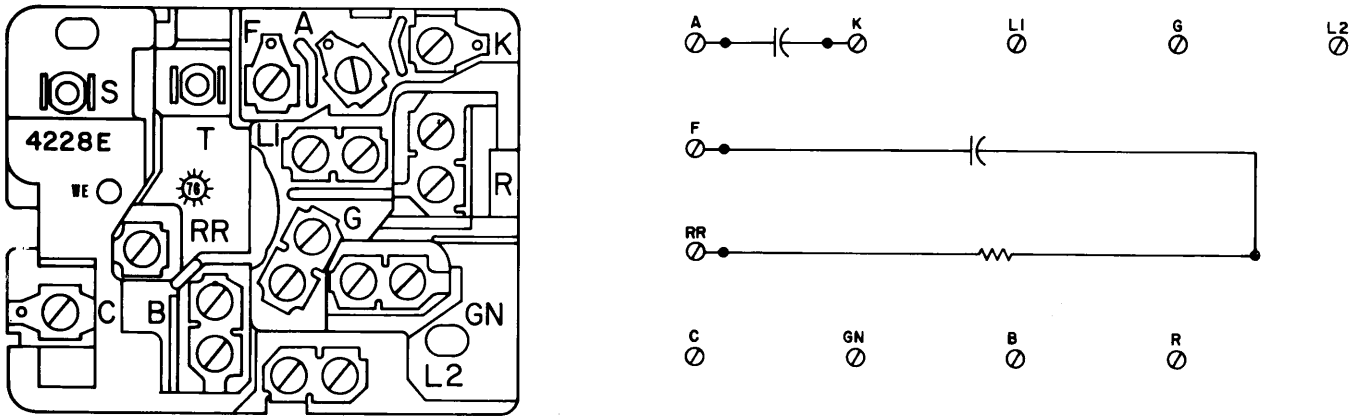


Fig. 17—4228E Network, Terminal Layout and Schematic

5.05 The 4228E network (Fig. 17):

(a) Is intended to replace the 425F network.

(b) Is intended for use in special rotary dial equipped telephone sets.

(c) Does not contain transmission circuit elements or antisidetone balancing network.

5.06 The 4228F network (Fig. 13):

(a) Is intended to replace the 4010B network.

(b) Intended for use in rotary dial equipped telephone sets.

(c) Same as 4228A except for mounting brackets.

5.07 The 4228G network (Fig. 14):

(a) Is intended to replace the 4010D network.

(b) The dial pulse capacitor at terminal F is omitted.

(c) Intended for use in TOUCH-TONE dial equipped telephone sets.

(d) Has S and T terminals.

(e) Same as 4228B except for mounting brackets.

5.08 The 4228J network (Fig. 18):

(a) Is the same as the 4228AB network, except that equalizing varistors are replaced with strap options for speech equalization and does not have spade-tipped leads.

(b) Requires a strapping option for use with LC-type TOUCH-TONE dials.

(c) Is a service center substitute for the 4228R and AB network in high radio frequency interference locations.

(d) Has leads with a connector for connecting to the telephone set.

(e) Does not have mounting brackets.

5.09 The 4228K network (Fig. 14):

(a) Is intended to replace ◗4010D◖ network.

(b) Same as 4228B, but has mounting brackets for use in 2554B telephone set.

5.10 The 4228L network (Fig. 14):

(a) Same as 4228G, but has no third mounting bracket.

5.11 The 4228M network (Fig. 13):

(a) Same as 4228A, but does not have mounting brackets.

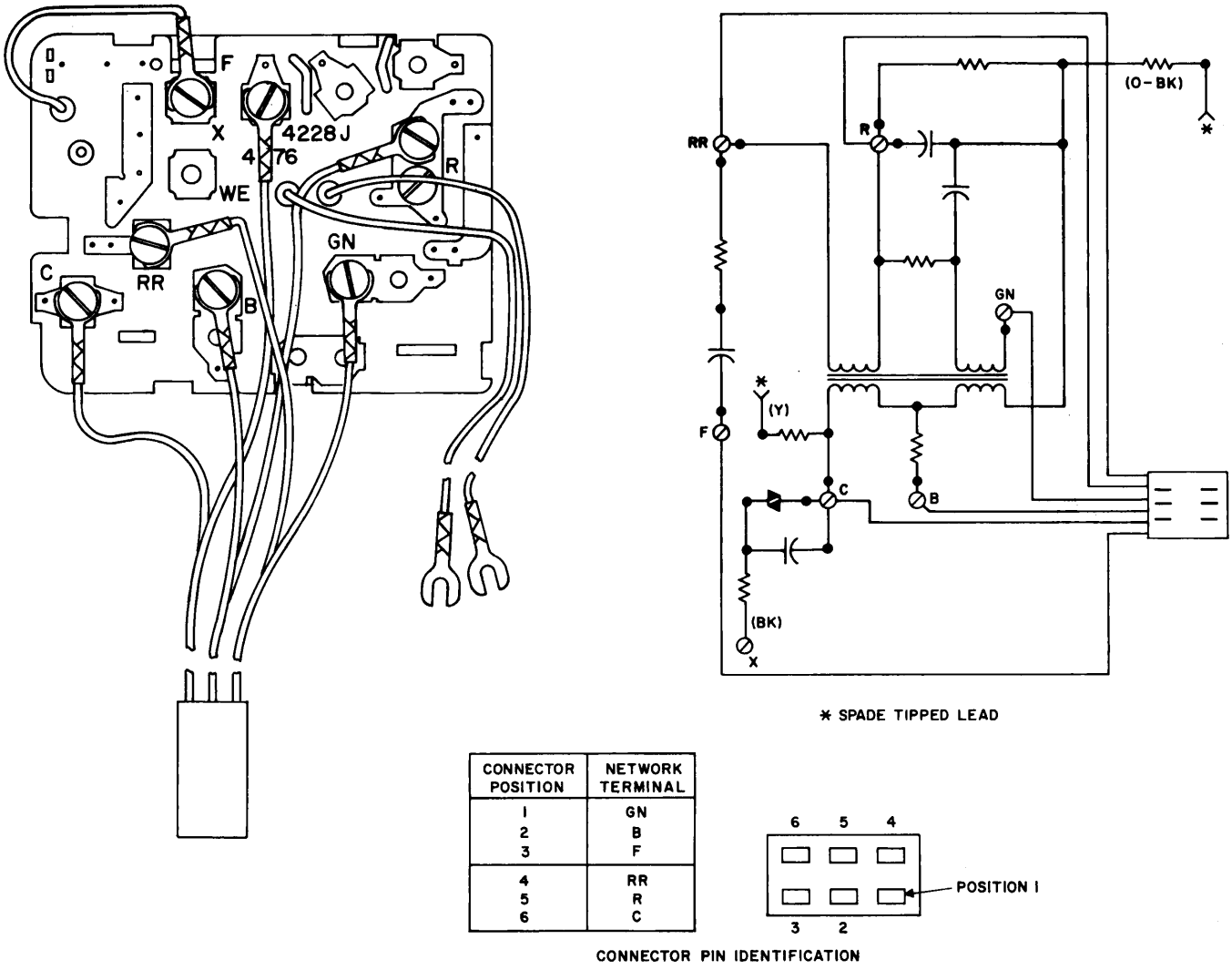


Fig. 18—4228J Network, Terminal Layout and Schematic

5.12 The 4228N network (Fig. 14):

(a) Same as 4228B, but does not have mounting brackets.

(b) Has spade-tipped leads for connecting to the telephone set, but does not include ▶adapter assembly.◀

(c) Does not have ringer capacitor.

(d) Does not have mounting brackets.

5.13 The 4228P network (Fig. 13):

(a) Is intended to replace 4010B network.

(b) Is intended to be used in rotary and TOUCH-TONE dial coin telephone sets.

(c) Same as 4228F, but does not have third mounting bracket.

5.14 The ▶4228R (MD)◀ network (Fig. 19):

(a) Is intended for use in TOUCH-TONE dial equipped telephone sets.

5.15 The 4228S network (Fig. 13):

(a) Same as 4228A, but does not have third bracket.

5.16 The 4228T network (Fig. 14):

(a) Same as 4228B, but does not have third mounting bracket.

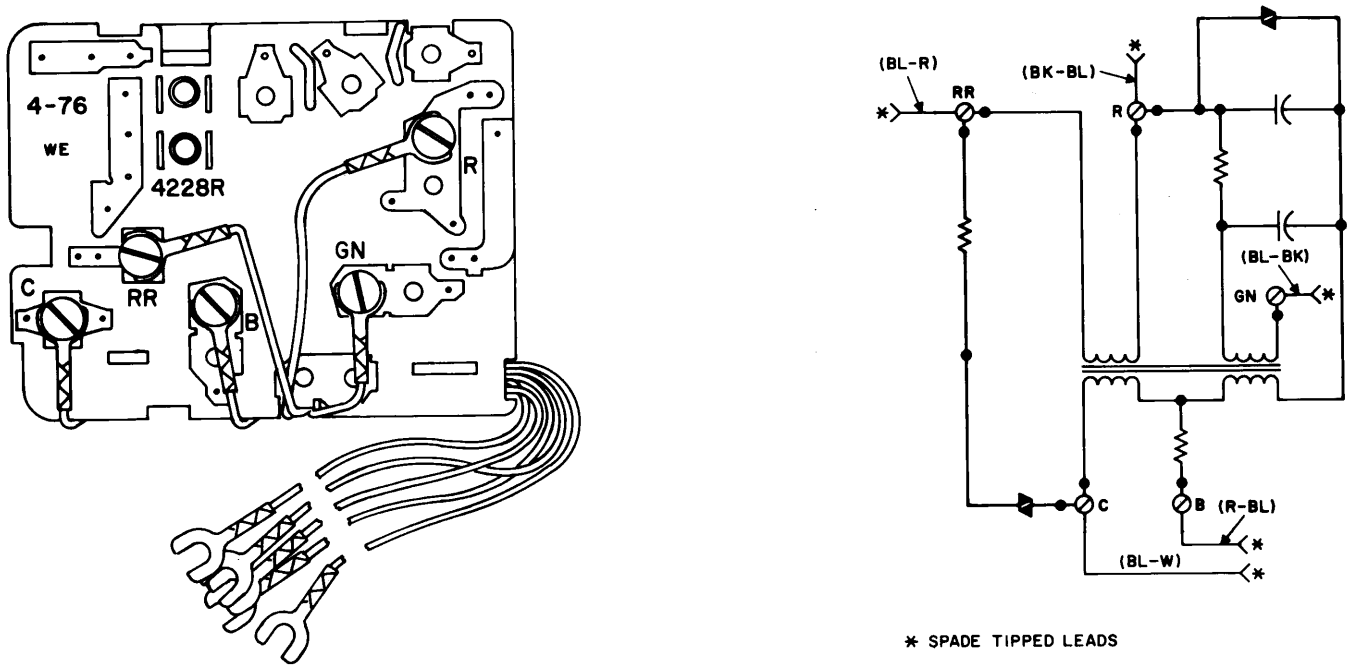


Fig. 19—4228R (MD) Network, Terminal Layout and Schematic

5.17 The 4228U network (Fig. 13):

(a) Is intended to replace 4010B network.

(b) Is intended to be used in rotary dial CALL DIRECTOR® telephone sets.

(c) Same as 4228P except for mounting bracket.

5.18 The 4228W network (Fig. 20):

(a) Same as 4228A, but has S and T terminals and no third mounting bracket.

5.19 The 4228Y network (Fig. 14):

(a) Same as 4228B, but has different mounting brackets.

5.20 The 4228AA network (Fig. 13):

(a) Same as 4228A, but has different mounting brackets.

5.21 The 4228AB network (Fig. 21):

(a) Is intended for use in rotary or TOUCH-TONE dial equipped telephone sets.

(b) Has leads with a connector for connecting to the telephone set.

(c) Does not have ringer capacitor.

(d) Does not have mounting brackets.

5.22 The 4228AC network (Fig. 13).

(a) Intended for use in special rotary dial equipped telephone sets.

(b) Same as 4228A except has only two mounting legs instead of three.

5.23 The 4228AD network (Fig. 14).

(a) Intended for use in special TOUCH-TONE dial equipped telephone sets.

(b) Same as 4228B except has only two mounting legs instead of three.

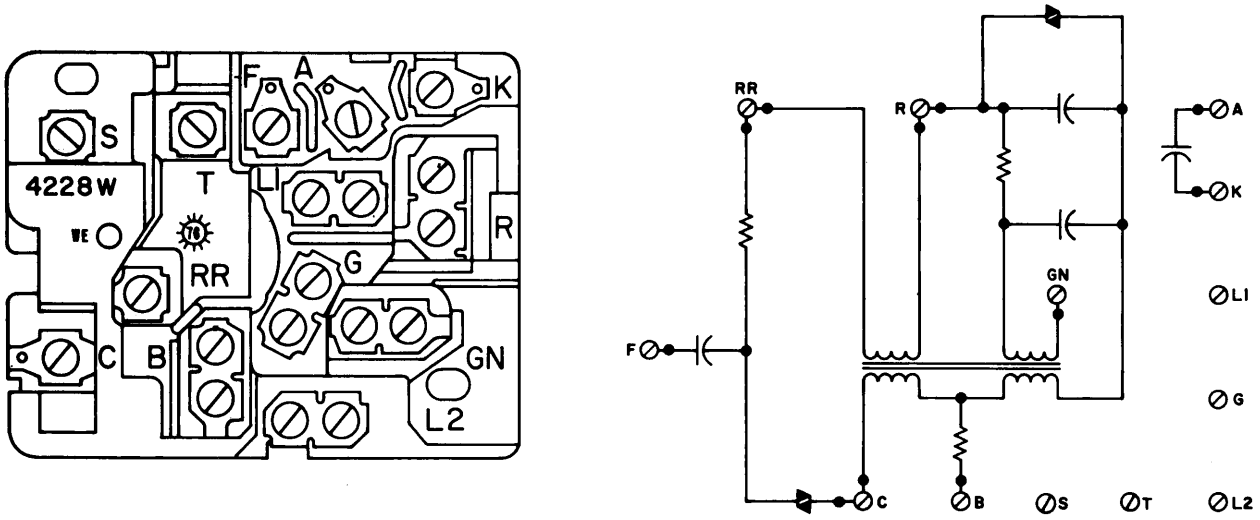
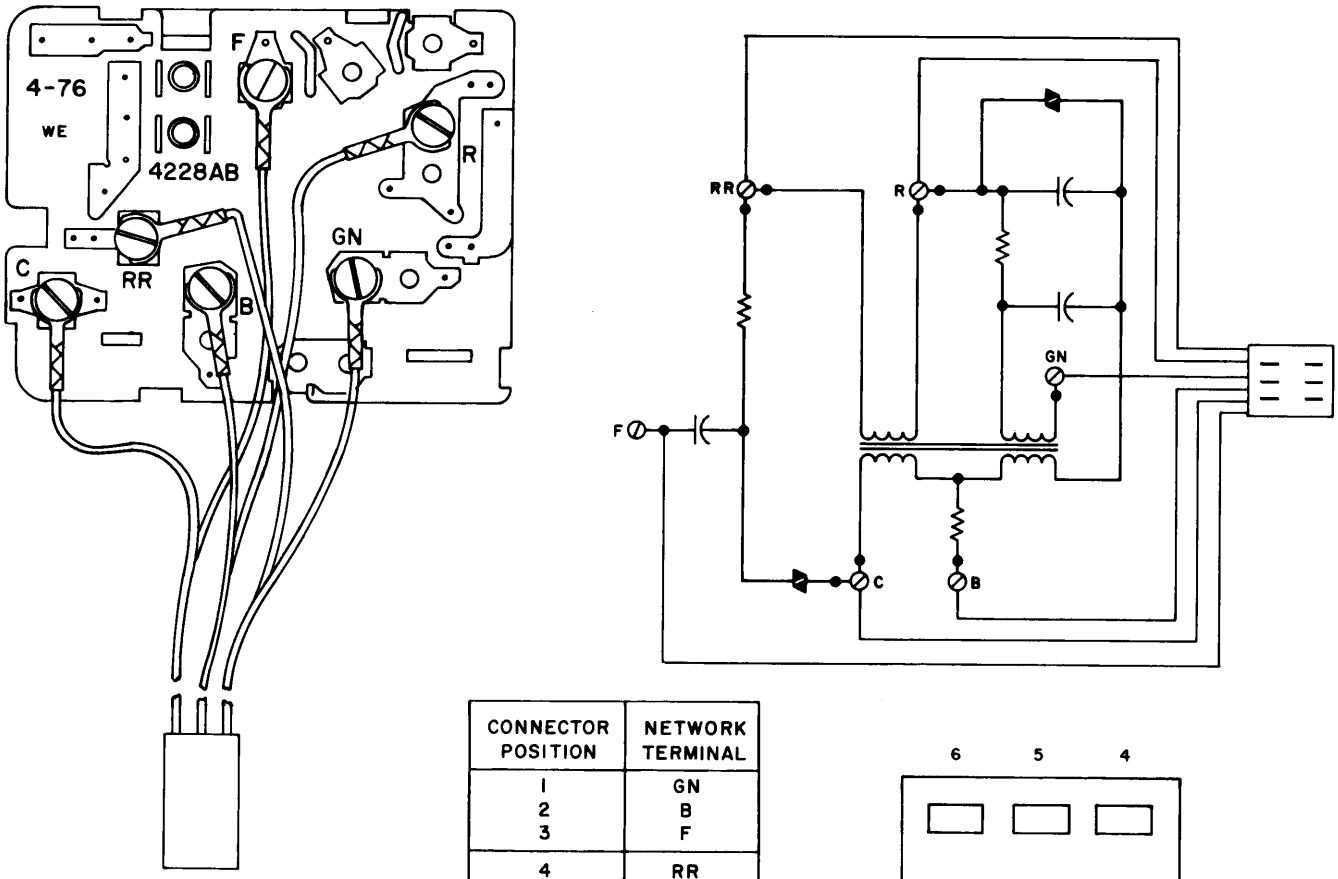


Fig. 20—4228W Network, Terminal Layout and Schematic



CONNECTOR POSITION	NETWORK TERMINAL
1	GN
2	B
3	F
4	RR
5	R
6	C

CONNECTOR PIN IDENTIFICATION

Fig. 21—4228AB Network, Terminal Layout and Schematic

▶TABLE A◀

NETWORK FEATURES

NET. TYPE	CONTAINS S AND T TERM.	CAPACITOR ON F TERM.	SPADE-TIPPED LEADS FOR STRAPPING OPTIONS	ROTARY DIAL SET	"TOUCH-TONE" DIAL SET	CAPACITOR ON A AND K TERMS
425D		X		X		X
425E		X		X		X
425F		X		X		X
425J		X	X	X	X	X
425K	X				X	X
4010B		X	X	X		X
4010C		X			X	X
4010D					X	X
4010E		X	X	X	X	X
4228A		X		X		X
4228B	X				X	X
4228C		X		X		X
4228D	X	X	X	X	X	X
4228E		X		X		X
4228F		X		X		X
4228G	X				X	X
4228J	X	X	X	X	X	X
4228K	X				X	X
4228L	X				X	X
4228M		X		X		X
4228N	X				X	X
4228P		X		X	X	X
4228R (MD)					X	
4228S		X		X		X
4228T	X				X	X
4228U		X		X		X
4228W	X	X		X		X
4228Y	X				X	X
4228AA		X		X		X
4228AB		X		X	X	
4228AC		X		X		X
4228AD	X				X	X