

**“PULSE\* 120” – SG-1A**

**ELECTRONIC PRIVATE AUTOMATIC BRANCH EXCHANGE**

**TELEPHONE CONSOLES, QCN100B AND QCN102A**

**MECHANICAL FAULT REPAIR**

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**1. GENERAL**

1.01 Mechanical faults in the QCN100B and QCN102A consoles are corrected by substituting the defective item.

1.02 Mechanical fault or disfiguration conditions may be detected by visual inspection, or as a result of their effect on console operations.

1.03 For a description of the QCN100B and QCN102A consoles see Section 553-5011-101.

**2. REPLACEMENT ITEMS**

2.01 An exploded diagram of the console is shown in Fig. 1. The field-replaceable items are indicated by arrows and keyed by number to Table A.

2.02 The complete console must be replaced if faults occur in nonreplaceable items.

**3. FAULT REPAIR**

3.01 Mechanical faults in the replaceable items, detected by visual inspection or during the console-operation fault-clearing procedure (Section 553-5011-509 and 553-5011-511), are repaired by substitution of the following items.

**A. Faceplate Assembly**

**Removal**

- (1) Grasp the upper corners of the faceplate with the fingertips.
- (2) Lift the faceplate firmly away from the body of the console until the zipper material, which secures the faceplate, separates.
- (3) Remove the faceplate.

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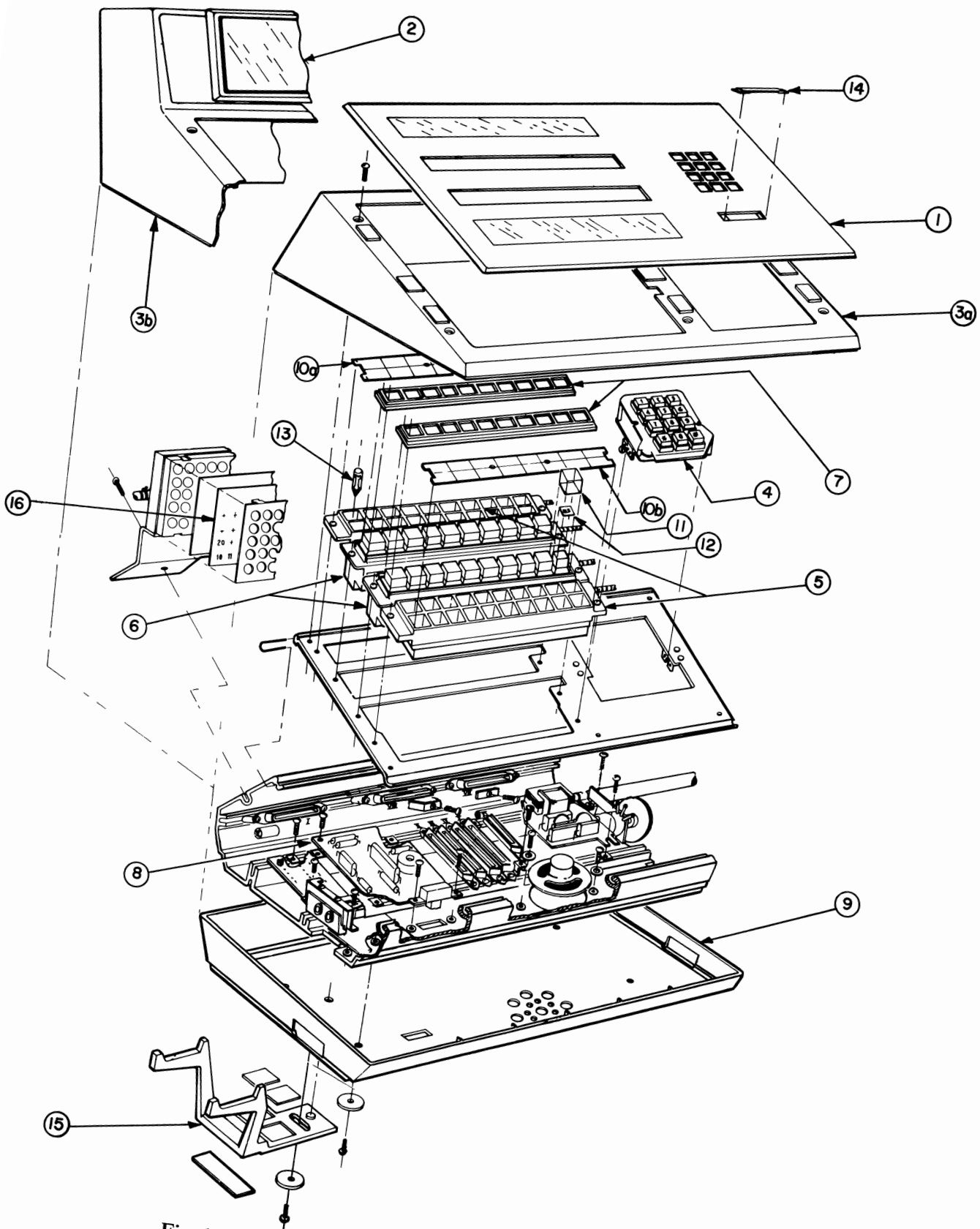


Fig. 1 - Attendant Console: Exploded Diagram  
(Refer to Table A for Key to Replaceable Items)

**TABLE A**  
**ATTENDANT CONSOLE REPLACEABLE ITEM**

KEYED TO FIG. 4	ITEM	ORDER CODE
1	Console-Faceplate Assembly	P0501026 FACEPLATE BROWN P0501027 FACEPLATE BLUE P0501028 FACEPLATE GREEN
2	Busy Lamp Field Panel	P0501202 BSY LP FD PANEL
3(a)	Upper Housing Assembly (QCN100B Console)	P0517269 UPPER HSING 100B
3(b)	Upper Housing Assembly (QCN102A Console)	P0517270 UPPER HSING 102A
4	Dial-Mechanism Assembly	P0501711 DIAL MECH ASSY
5	Lamp Socket	QST2A LAMP SOCKET
6	Key	NE-647QA KEY
7	Collar	P0501203 COLLAR
8	Tone Generator	P0502606 TONE GEN – CONSOLE
9	Lower Housing Assembly	P0517268 LOWER HOUSING
10(a)	Designation Strip, Top	P0500933 DESIG STRIP
10(b)	Designation Strip, Bottom	P0517267 DESIG STRIP
11	(a) Cap (Key) Clear (b) Cap (Key) Red	P0500867 CAP KEY CLEAR P0500868 CAP KEY RED
12	Designation Card (Key)	P0500876 KEY DESIG CARD
13	Lamp, NE-51A	NE-51A LAMP
14	Designation Window	P096D313 DESIGN WINDOW
15	Cradle Assembly	P0500946 CRADLE ASSY
16	Busy Lamp Field Number Sheet 3-digits	P0525874 NUMBER SHEET
16	Busy Lamp Field Number Sheet 2-digits	P0535397 NUMBER SHEET

**Assembly**

- (1) Place the faceplate in position.
- (2) Press firmly on the sides to bond the zipper material.

**B. Busy-Lamp Field Panel (QCN102A Only)  
(Fig. 3, 4)**

**Removal**

- (1) Remove the console-faceplate assembly per Part A.
- (2) Grasp the upper edge of the panel, approximately 3 inches from the ends, with the fingertips.
- (3) Press down and pull away from the upper housing until the panel releases at the top.
- (4) Remove the panel.

**Assembly**

- (1) Place the panel in position.
- (2) Press firmly on the top of the panel until it snaps into position in the upper housing.
- (3) Replace the console-faceplate assembly.

**C. Upper-Housing Assembly**

**Removal**

- (1) Remove the console-faceplate assembly per Part A.
- (2) Remove the busy-lamp field panel (QCN102A only) per Part B.
- (3) Remove the six screws securing the upper housing to the aluminum panel. The screws and the aluminum panel are revealed when the faceplate is removed.
- (4) Lift the upper housing from the body of the console. (On the QCN102A only, to avoid damage ensure that the lower edge of the busy-lamp field opening clears the busy-lamp field assembly.)

**Assembly**

- (1) Lower the upper housing into position on the body of the console.
- (2) Replace and tighten the six securing screws.
- (3) Replace the busy-lamp field panel (QCN102A only).
- (4) Replace the console-faceplate assembly.

**D. Dial-Mechanism Assembly**

**Removal**

- (1) Remove the console-faceplate assembly per Part A.
- (2) Remove the busy-lamp field panel (QCN102A only) per Part B.
- (3) Remove the upper housing per Part C.
- (4) Pull out the two clips securing the upper corners of the aluminum panel to the aluminum frame.
- (5) Lift the upper edge of the aluminum panel away from the frame. The panel will hinge on its lower edge up to a point, after which it will release from the frame.
- (6) Disconnect the push-on terminals that connect the dial mechanism to the terminal board, and ensure that the laced wiring is free (Fig. 5).
- (7) Loosen the two screws securing the dial mechanism to the mounting brackets.
- (8) Remove the dial mechanism from the aluminum panel.

**Assembly**

- (1) Position the dial mechanism in the aluminum panel.

- (2) Tighten the two screws which secure the dial mechanism to the mounting brackets.
- (3) Push the laced-wiring terminals onto the lugs on the terminal board, in accordance with the wiring diagram in Fig. 5.
- (4) Mate the channels in the lower edge of the aluminum panel with the corresponding channel in the aluminum frame.
- (5) Position the laced wiring to avoid damage to components and press the upper edge of the aluminum panel down to the frame.
- (6) Replace the clips securing the upper corners of the aluminum panel to the frame.
- (7) Replace the upper-housing assembly.
- (8) Replace the busy-lamp field panel (QCN102A only).
- (9) Replace the console-faceplate assembly.

#### E. Key or Lamp Socket

**Note:** The following removal and assembly sequences apply to both key and lamp socket.

##### Removal

- (1) Remove the console-faceplate assembly per Part A.
- (2) Remove the busy-lamp field panel (QCN102A only) per Part B.
- (3) Remove the upper-housing assembly per Part C.
- (4) Remove the collar surrounding the pushbuttons.
- (5) Pull out the two clips securing the upper corners of the aluminum panel to the aluminum frame.

- (6) Lift the upper edge of the aluminum panel away from the frame. The panel will hinge on its lower edge up to a point, after which it will release from the frame.
- (7) Disconnect the plug associated with the key or lamp socket to be removed, as shown in the wiring diagram (Fig. 2, Fig. 3) from its socket, and ensure that the laced wiring is free.
- (8) Remove the two screws securing the key to the aluminum panel.
- (9) Remove the key from the aluminum panel.

##### Assembly

- (1) Position the key in the aluminum panel.
- (2) Replace the two screws which secure the key to the aluminum panel.
- (3) Connect the plug terminating the laced wiring to the appropriate socket as shown in the wiring diagram (Fig. 2, Fig. 4)
- (4) Mate the channel in the lower edge of the aluminum panel with the corresponding channel in the aluminum frame.
- (5) Position the laced wiring to avoid damage to components and press the upper edge of the aluminum panel down to the frame.
- (6) Replace the clips securing the upper corners of the aluminum panel to the frame.
- (7) Replace the collar surrounding the push-buttons.
- (8) Replace the upper-housing assembly.
- (9) Replace the busy-lamp field panel (QCN102A only).
- (10) Replace the console-faceplate assembly.

**F. Tone Generator**

**Removal**

- (1) Remove the console-faceplate assembly per Part A.
- (2) Remove the busy-lamp field panel (QCN102A only) per Part B.
- (3) Remove the upper-housing assembly per Part C.
- (4) Remove the two clips securing the upper corners of the aluminum panel to the aluminum frame.
- (5) Lift the upper edge of the aluminum panel away from the frame. The panel will hinge on its lower edge up to a point, after which it will release from the frame.
- (6) Disconnect the push-on terminals connecting the tone generator to the terminal board, and ensure that the laced wiring is free (Fig. 5).
- (7) Remove the two screws securing the tone generator to the aluminum frame.
- (8) Remove the tone generator.

**Assembly**

- (1) Position the tone generator in the aluminum frame.
- (2) Replace and tighten the two screws which secure the tone generator to the aluminum frame.
- (3) Push the laced-wiring terminals onto the lugs on the terminal board in accordance with the wiring diagram (Fig. 5).
- (4) Mate the channel in the lower-edge of the aluminum panel with the corresponding channel in the frame.

- (5) Position the laced wiring to avoid damage to components and press the upper edge of the aluminum panel down to the frame.
- (6) Replace the clips securing the aluminum panel to the frame.
- (7) Replace the upper-housing assembly.
- (8) Replace the busy-lamp field panel (QCN102A only).
- (9) Replace the console-faceplate assembly.

**G. Lower-Housing Assembly**

**Removal**

- (1) Remove the console-faceplate assembly per Part A.
- (2) Remove the busy-lamp field panel (QCN102A only) per Part B.
- (3) Remove the upper-housing assembly per Part C.
- (4) Pull out the two clips securing the upper corners of the aluminum panel to the aluminum frame.
- (5) Lift the upper edge of the aluminum panel away from the frame. The panel will hinge on its lower edge up to a point, after which it will release from the frame.
- (6) Remove the two screws securing each of the jack-mounting brackets to the aluminum frame (right and left).
- (7) Turn the console over and remove the four screws (located in the center of the four pads) which secure the lower housing to the aluminum frame.
- (8) Separate the lower housing from the aluminum frame.

**Assembly**

- (1) Position the aluminum frame in the lower housing.
- (2) Ensure that the aluminum frame is pressed firmly against the back of the lower housing and tighten the four securing screws on the underside of the housing.
- (3) With the console standing on its four pads, replace the two jacks and tighten the mounting screws.
- (4) Mate the channel in the lower edge of the aluminum panel with the corresponding channel in the frame.
- (5) Position the laced wiring to avoid damage to components and press the upper edge of the aluminum panel down to the frame.
- (6) Replace the clips securing the aluminum panel to the frame.
- (7) Replace the upper-housing assembly.
- (8) Replace the busy-lamp field panel (QCN102A only).
- (9) Replace the console-faceplate assembly.

**H. Designation Strip****Removal**

- (1) Position the designation strip over the QST2A lamp socket.
- (2) Replace the console-faceplate assembly.

**Assembly**

- (1) Remove the console-faceplate assembly per Part B.
- (2) Remove the designation strip from the face of the QST2A lamp socket.

**I. Cap Key (Clear or Red)****Removal**

- (1) Grasp the cap firmly between thumb and forefinger and lift off with a tipping motion.

**Assembly**

- (1) Position the cap over the key and press down firmly.

**J. Designation Card (Key)****Removal**

- (1) Remove the cap (key) per Part 1.
- (2) Remove the designation card (key).

**Assembly**

- (1) Replace the designation card (key).
- (2) Replace the cap (key).

**K. Lamp NE-51A Substitution in Busy Lamp Block Assembly (QCN102A Only)****Removal**

- (1) Remove the console-faceplate assembly per Part A.
- (2) Remove the busy-lamp field panel per Part B.
- (3) Remove the four shields from the front of the lamp-block assembly, and the lamp-number sheet.
- (4) Remove the lamp using the lamp-extractor tool NE-553A.

**Assembly**

- (1) Replace the lamp.

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- (2) Replace the lamp-number sheet and the four shields.
- (3) Replace the busy-lamp field panel.
- (4) Replace the console-faceplate assembly.

### L. Lamp NE-51A Substitution in QST2A Lamp Socket

#### Removal

- (1) Remove the console-faceplate assembly.
- (2) Remove the designation strip.
- (3) Remove the lamp using the lamp-extractor tool NE-553A.

#### Assembly

- (1) Replace the lamp.
- (2) Replace the designation strip.
- (3) Replace the console-faceplate assembly.

### M. Lamp NE-51A Substitution in Key

#### Removal

- (1) Remove the console-faceplate assembly.
- (2) Remove the collar from the key.
- (3) Remove the cap (key).
- (4) Grasp the plastic button firmly between thumb and forefinger and remove.
- (5) Remove the lamp using the lamp-extractor tool NE-553A.

#### Assembly

- (1) Replace the lamp.
- (2) Position the plastic button and cap over the lamp and press down firmly.

- (3) Replace the collar.
- (4) Replace the console-faceplate assembly.

### N. Designation Window

#### Removal

- (1) Insert the releaser tool (NS-16750-L3) into the hole at one end of the window.
- (2) Bow the window upwards until it can be grasped by thumb and forefinger.
- (3) Lift the window from the console-faceplate assembly.

#### Assembly

- (1) Bow the window upwards with thumb and fingers.
- (2) Locate both ends of the window in the slots provided on the console-faceplate assembly.
- (3) Release the window and press it firmly into position.

### O. Busy Lamp Field Number Sheet Substitution

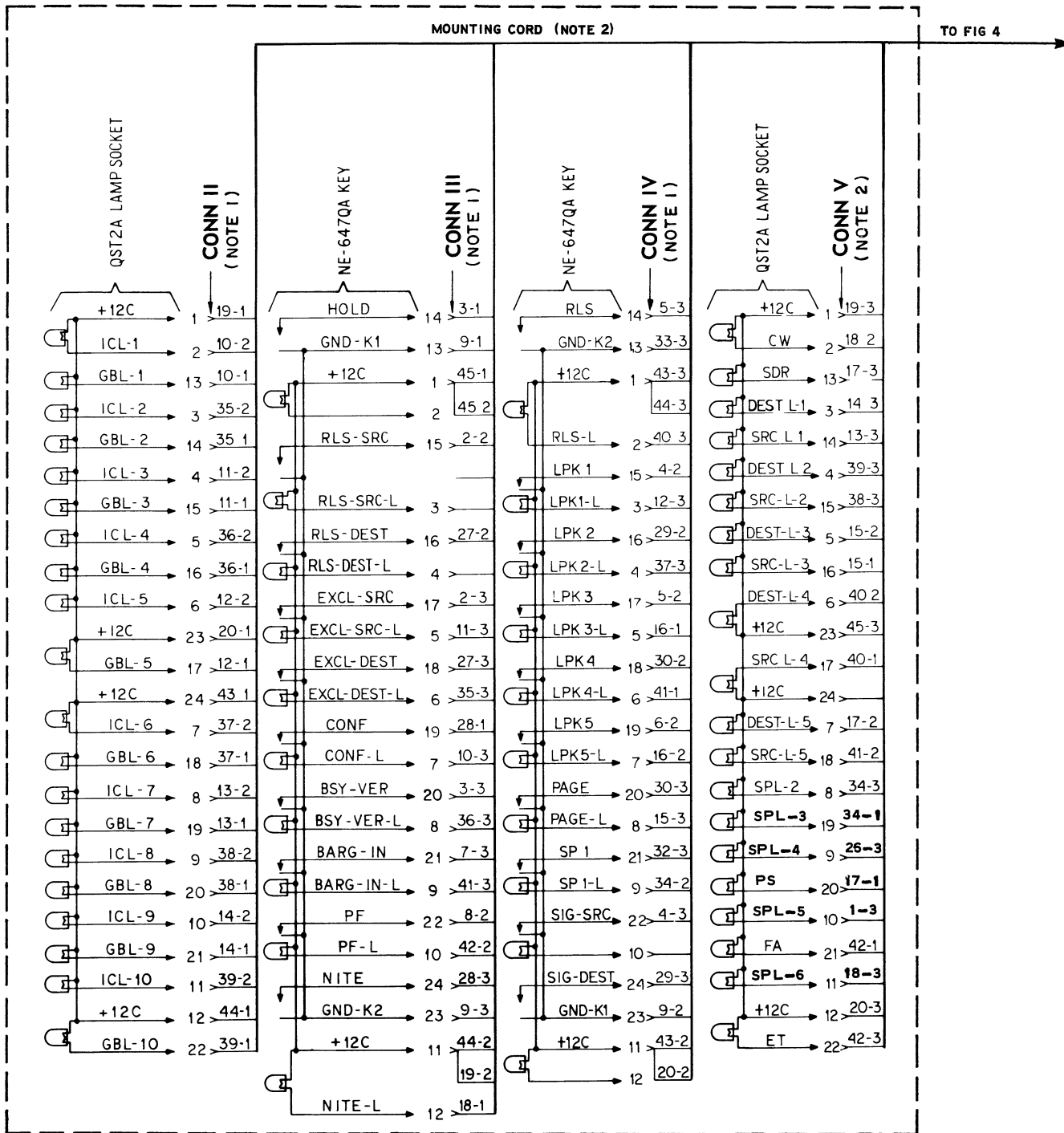
#### Removal

- (1) Remove the console-faceplate assembly, per Part A.
- (2) Remove busy-lamp field panel per Part B.
- (3) Remove the number sheet retainers by pivoting the retainer on its lower edge until the two upper clips are freed from the block.
- (4) Pull retainer away from the block.
- (5) Repeat steps 3 and 4 until all four retainers are removed. The last retainer will free the number sheet from the block.
- (6) Substitute the number sheet.



**Assembly**

- (1) Place the number and opaque plastic sheets between the clips of one of the retainers.
- (2) Insert the clips of the retainer in the indentation at the base of the blocks.
- (3) Tilt the retainer until the upper clips are well seated in the upper indentations of the blocks.
- (4) Repeat the last two operations for steps 2 and 3 for each retainer.
- (5) Aligned the number-sheet markings with the openings in the retainer.
- (6) Replace the busy-lamp field panel, per Part B.
- (7) Replace the console-faceplate assembly, per Part A.



**NOTE 1:** LEAD NUMBERING SHOWS PIN NUMBER FOLLOWED BY PLUG NUMBER, I.E., 36-2 IS PIN 36 ON PLUG 2.

**NOTE 2:** QCN100B CONSOLE IS EQUIPPED WITH NE-120QE CORD.  
QCN102A CONSOLE IS EQUIPPED WITH NE-D270QA CORD.

**Fig. 2 – Attendant Key and Control Lamp Wiring Diagram for QCN100B and QCN102A Consoles**

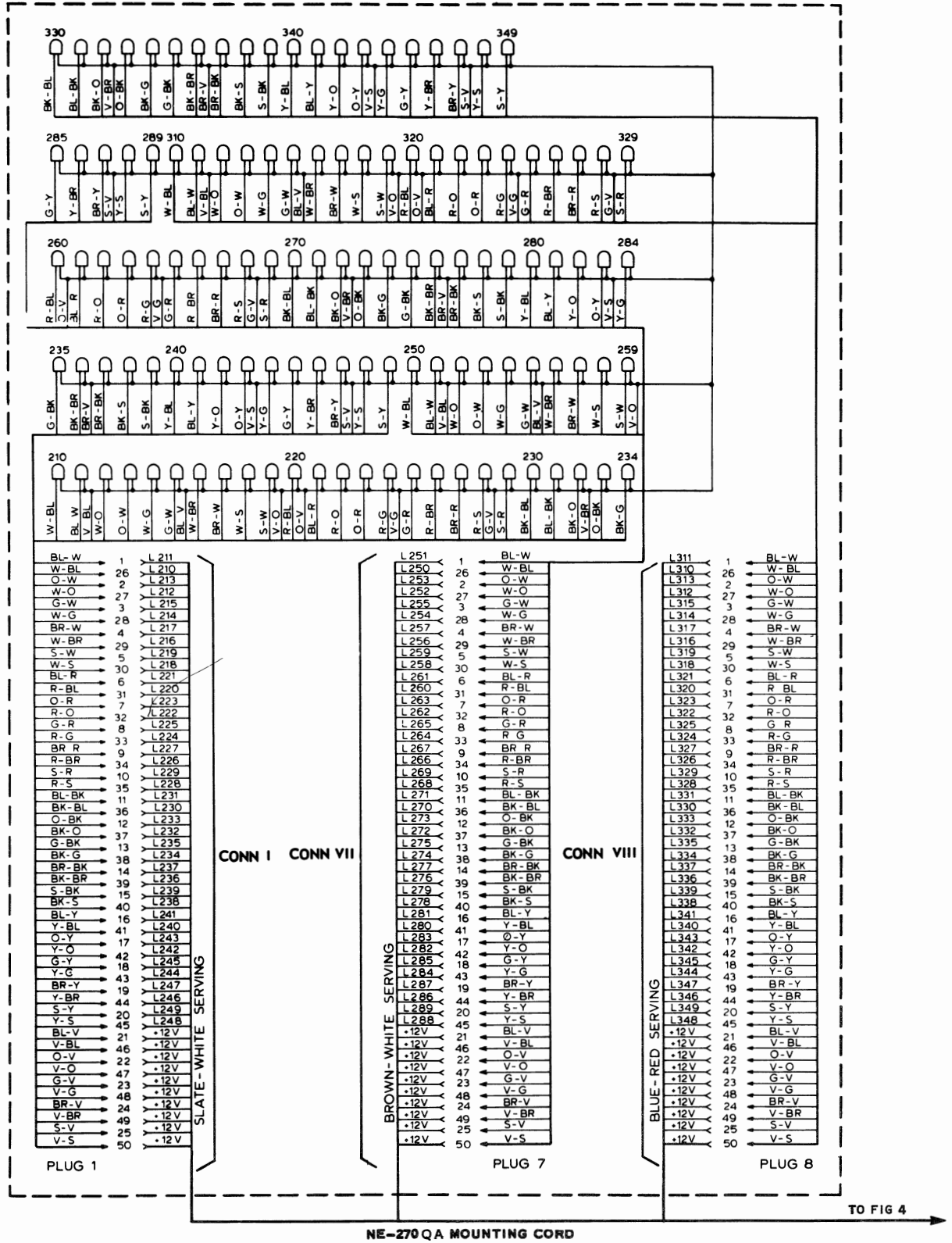
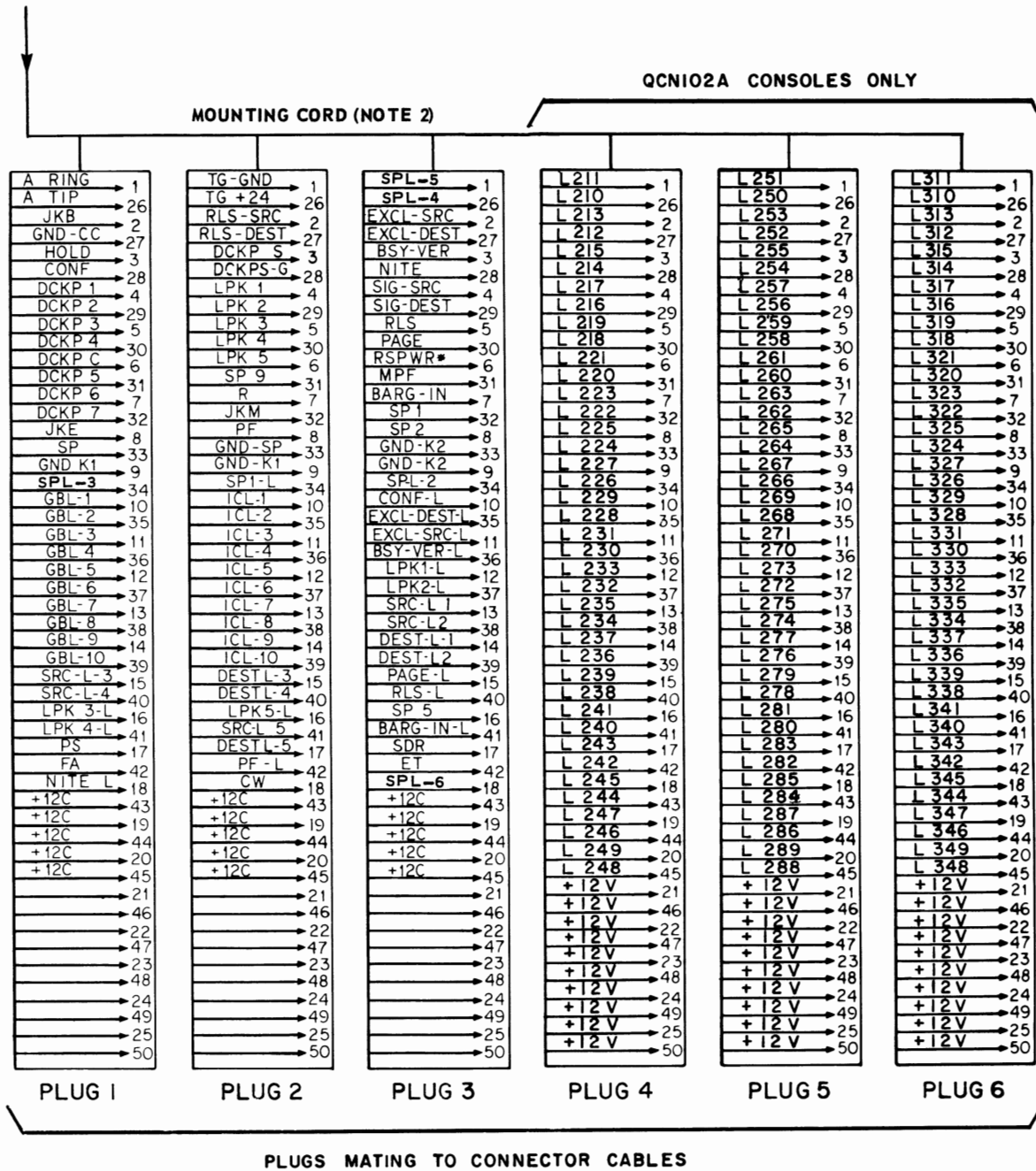


Fig. 3 -- Busy-Lamp Field Wiring Diagram for QCN102A Console

FROM KEY AND LAMP  
CONNECTORS OF  
FIGS 2, 3 & 5



NOTE 2: QCNI00B CONSOLE IS EQUIPPED WITH NE-120QE CORD.  
QCNI02A CONSOLE IS EQUIPPED WITH NE-D270QA CORD.

Fig. 4 – Console Mounting Cord Plug Identification

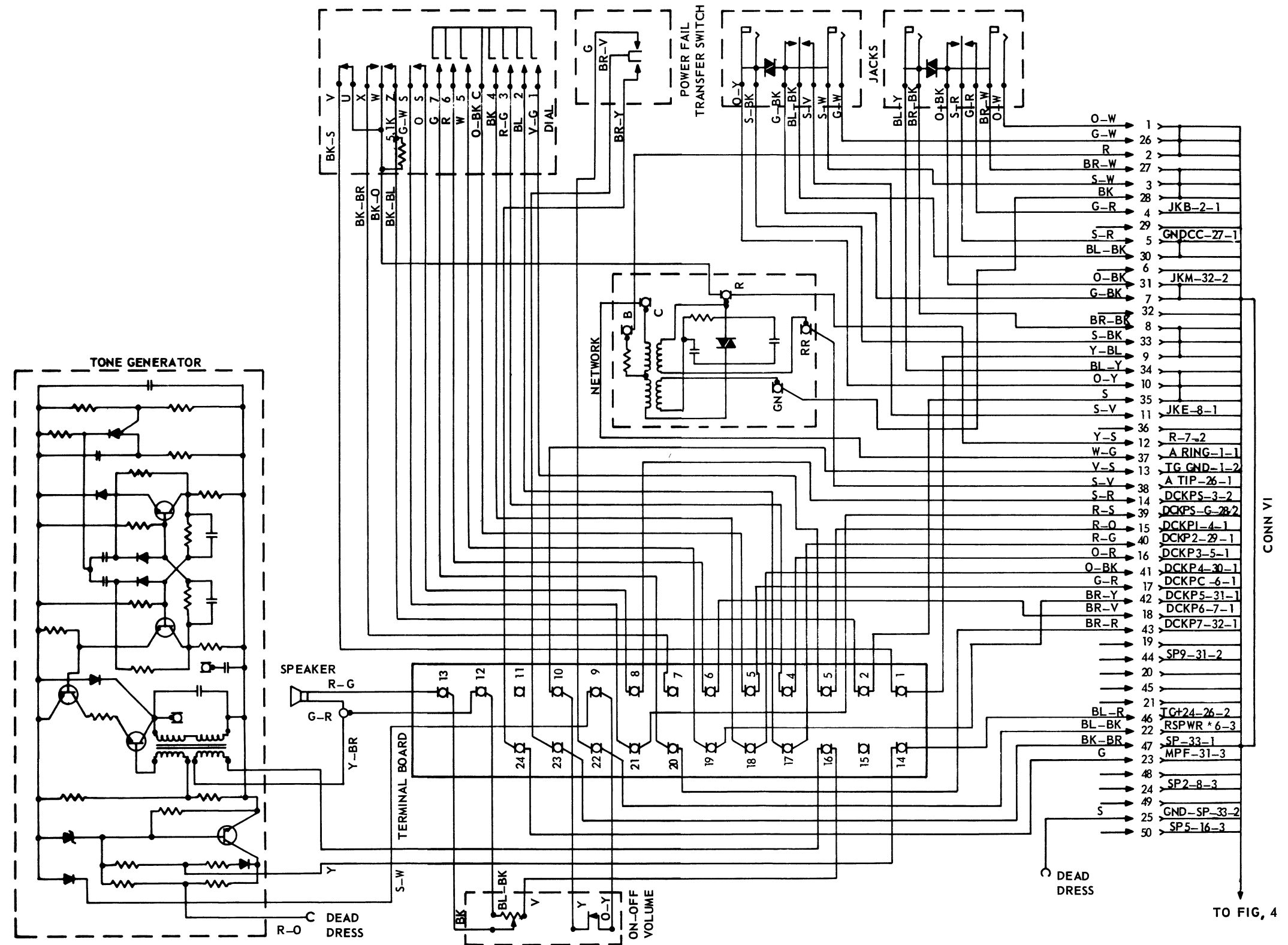


Fig. 5 — Attendant Telephone Wiring Diagram for QCN100B and QCN102A Consoles