

**DIODES ON 835A NETWORKS  
ON J67465 OUTGOING TRUNK IDENTIFICATION FRAMES  
IN 4A AND 4M TOLL CROSSBAR OFFICES  
REPLACEMENT PROCEDURES**

**1. GENERAL**

**1.01** This section covers the approved procedures for replacing diodes on 835A networks used on outgoing trunk identification frames in the 4A and 4M toll crossbar offices.

**1.02** Replacement of defective diodes shall be made while the network is in place on the identification frame. As shown in Fig. 1, the 835A network is a printed wiring board used to mount 20 pairs (H and V) of 420B type diodes.

*Note:* The 420B diode should be used for replacing the F-54840 diodes. The 420B diodes and the F-54840 diodes are electrically equivalent and interchangeable.

**1.03** Before replacing a diode, remove the outgoing trunk identification circuit and the trunk assigned to the diode being replaced. Trunks assigned to other crosspoints on the network being repaired or on adjacent networks need not be removed from service. Effort should be made, however, not to short together terminals on the front of the networks.

**1.04** In general, the replacing H diode is connected and soldered to its associated terminals on the front and rear edges of the board, and the V diode is soldered to its associated front terminal and to the conductor path.

**1.05** Refer to Section 069-140-811 for the method of making and removing soldered connections using soldering coppers.

**2. LIST OF TOOLS**

CODE OR SPEC NO.	DESCRIPTION
KS-16346 L2	Soldering Copper
R-1102	Spudger
—	P-Long-Nose Pliers
—	V-Notch Diagonal Pliers

**3. INITIAL REPLACEMENT OF DIODES**

**3.01** *V1 Through V19 Diodes:* For the initial replacement of a defective V diode, mounted as shown in Fig. 1, proceed as follows.

(1) **Step 1:** Remove the defective diode by cutting the pigtail leads on the component side of the board as close to the board as possible using the V-notch pliers. Cut the pigtail lead on the front side of the frame first. When cutting the pigtail from the rear of the frame, P-long-nose pliers should be used to prevent the diode from dropping.

(2) **Step 2:** Form the pigtail lead of the replacing diode as shown in Fig. 2 so that the pigtail lead to be soldered to the conductor path will slip through the spare hole provided for this purpose (see Fig. 3).

*Caution: Care should be used to see that the symbol on the diode is correctly oriented with respect to its proper connection on the board. It is not necessary that the code and symbol marking on the diode be visible.*

(3) **Step 3:** With the P-long-nose pliers, insert the bent pigtail lead through the spare hole (see Fig. 3) and bend the lead, with the R-1102 spudger, toward the edge of the board. Cut the excess length of pigtail lead at the edge of the board.

(4) **Step 4:** Solder the bent pigtail lead to the conductor path in accordance with Part 5, holding the pigtail lead rigid during the soldering operation in order to obtain reliable connection.

(5) **Step 5:** With the P-long-nose pliers, wrap the replacing diode pigtail lead with a minimum of one and one-quarter turns around the top or bottom of the front terminal (see Fig. 3) as close to the switchboard cable connection as possible.

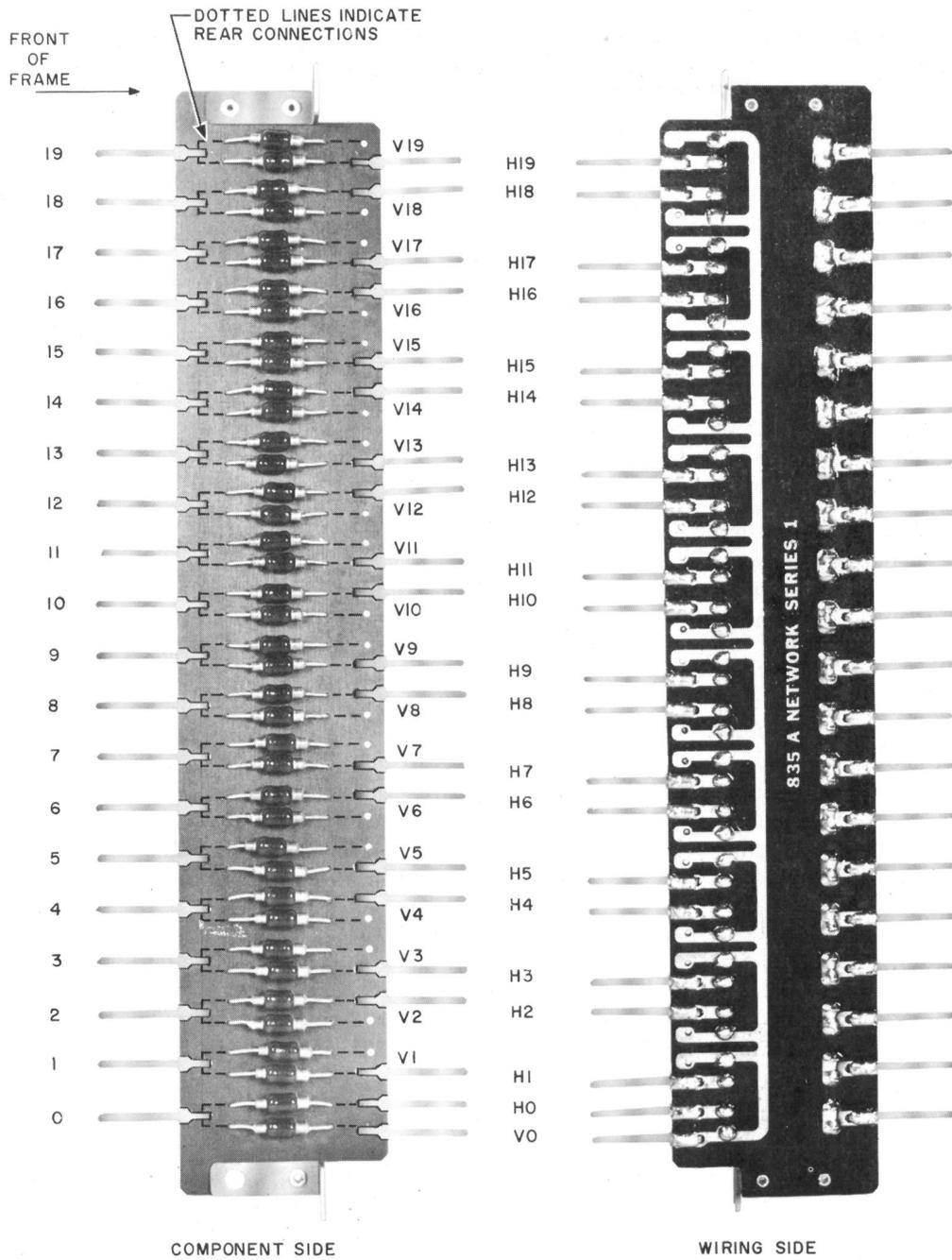


Fig. 1 - 835A Network Assembly (terminal designations are for reference only)

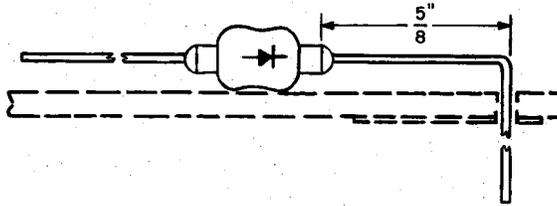


Fig. 2 - Forming Pigtail Lead

(6) **Step 6:** Solder both the pigtail and switchboard connection in accordance with Part 5. The lead should not be so taut as to distort the terminal.

**3.02 VO and HO Through H19 Diodes:** For the initial replacement of a defective VO or H diode, mounted as shown in Fig. 1, proceed as follows.

(1) **Step 1:** From the front of the frame, cut the pigtail lead of the defective diode on the component side of the board as close to the board as possible using the V-notch pliers.

(2) **Step 2:** With the R-1102 spudger, carefully draw the defective diode away from the board.

(3) **Step 3:** Using the P-long-nose pliers, connect the replacing diode to the front terminal by wrapping the pigtail lead with a minimum of one and one-quarter turns around the top or bottom edge of the terminal (see Fig. 3) as close to the switchboard cable connection as possible. The diode should be positioned approximately in line with the other diodes on the board.

**Caution:** Care should be used to see that the symbol on the diode is correctly oriented with respect to its proper connection on the board. It is not necessary that the code and symbol markings on the diode be visible.

(4) **Step 4:** Solder both the pigtail and switchboard connection in accordance with Part 5.

(5) **Step 5:** From the rear of the frame, cut the pigtail lead of the defective diode on the component side of the board as close to the board as possible. Use the P-long-nose pliers to prevent the diode from dropping.

(6) **Step 6:** Using the P-long-nose pliers, connect the replacing diode to the rear terminal by wrapping the pigtail lead with a minimum of one and one-quarter turns around the top or bottom edge of the terminal (see Fig. 3) as close to the strap as possible. The lead should not be so taut as to distort the terminal.

(7) **Step 7:** Solder both the pigtail lead and strap in accordance with Part 5.

#### 4. SUBSEQUENT REPLACEMENT OF DIODES

**4.01 V1 Through V19 Diodes:** For the subsequent replacement of a defective V diode, mounted as shown in Fig. 3, proceed as follows.

(1) **Step 1:** From the front of the frame, unsolder the pigtail lead of the defective diode from the front terminal (see 1.05), and unwrap the lead from the terminal using the P-long-nose pliers.

(2) **Step 2:** From the rear of the frame, cut the pigtail lead of the defective diode on the component side of the board approximately 1/2 inch from the hole in which the pigtail enters the board. Use the P-long-nose pliers to prevent the diode from falling.

(3) **Step 3:** Unsolder the remaining portion of the pigtail lead from the conductor path (see 1.05).

(4) **Step 4:** Connect the replacing diode as outlined in 3.01, Steps 2 through 5.

**4.02 VO and HO Through H19 Diodes:** For the subsequent replacement of a defective VO or H diode, mounted as shown in Fig. 3, proceed as follows.

(1) **Step 1:** From the front of the frame, unsolder the pigtail lead of the defective diode (see 1.05) and unwrap the lead from the terminal using the P-long-nose pliers.

(2) **Step 2:** With the R-1102 spudger, carefully draw the defective diode away from the board.

(3) **Step 3:** Connect the replacing diode to the front terminal as outlined in 3.02, Steps 3 and 4.

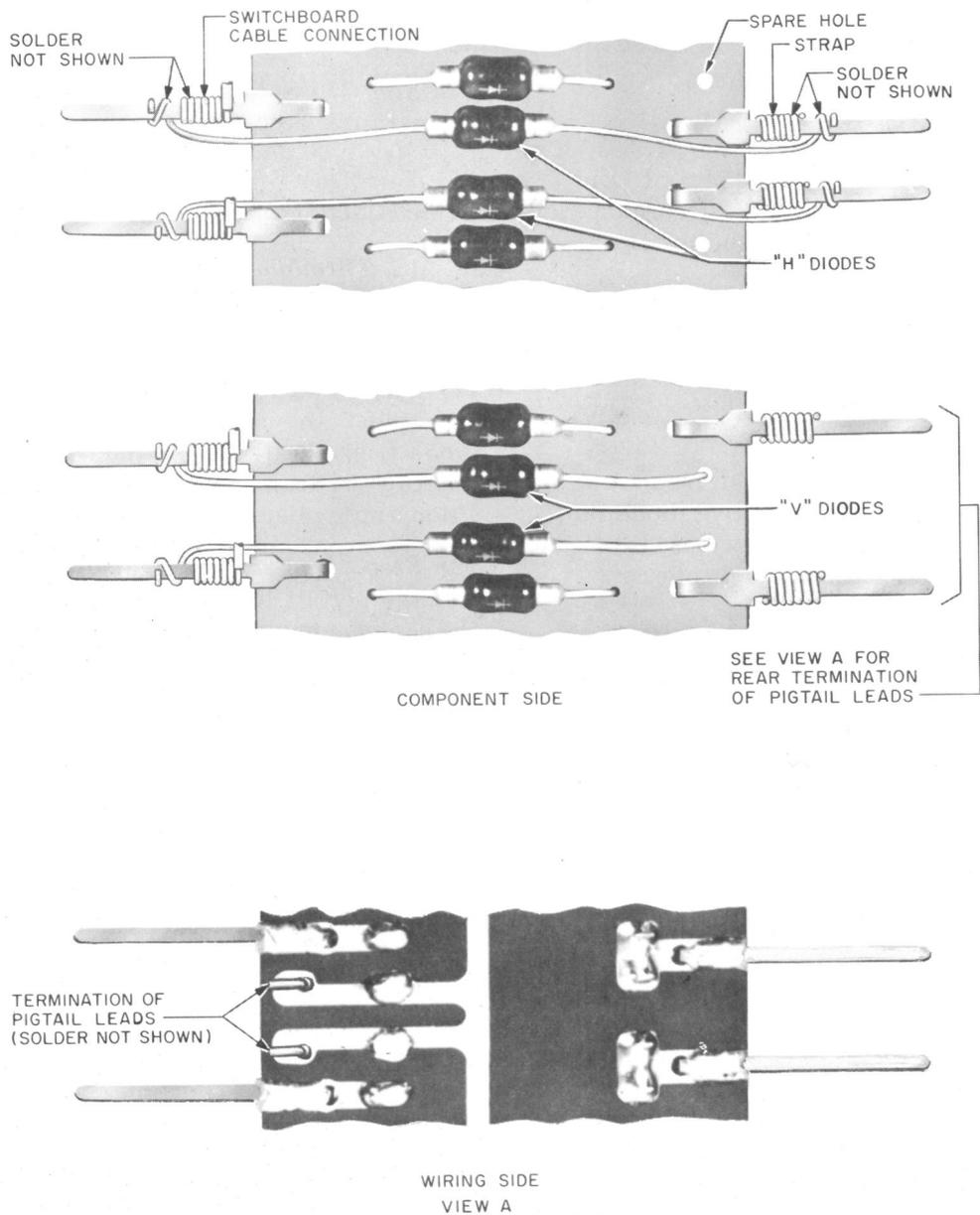


Fig. 3 - Method of Mounting Replacement Diodes

(4) **Step 4:** From the rear of the frame, unsolder the pigtail lead of the defective diode (see 1.05). With the P-long-nose pliers, unwrap the lead from the terminal and remove the diode.

(5) **Step 5:** Connect the replacing diode to the rear terminal as outlined in 3.02, Steps 6 and 7.

## 5. SOLDERING

5.01 All soldering should be done with rosin-core solder per RM-542891 because of its low melting temperature. Solder should be applied at the top of the terminals.

**Caution 1:** Soldering operation shall be done at the lowest possible temperature and in

*the shortest time practicable in order to localize the heating effect and thus prevent damaging the diodes. Because of its low operating temperature, use the KS-16346 L2 12-watt soldering copper. For the protection of the diode, use the P-long-nose pliers as a heat sink.*

**Caution 2:** Special care should be exercised to avoid even momentary contact between the soldering copper and the plastic insulation of the switchboard cable leads.

5.02 The soldered connection should show evidence of good wetting on the surfaces being joined and, after cooling, form a firm metallic bond. The surface of pigtail and conductor path should have a smooth, shiny appearance.