

# ILLUSTRATION BOOKLET

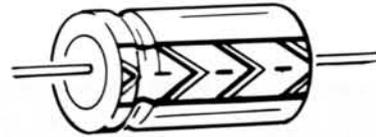
595-3801-05

NOTE: THE PARTS YOU RECEIVE IN YOUR KIT MAY LOOK SLIGHTLY DIFFERENT THAN THOSE SHOWN BELOW.

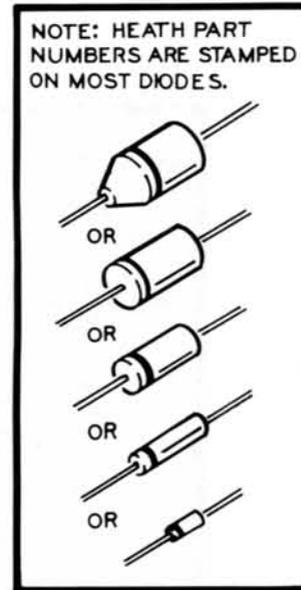
A1



A2



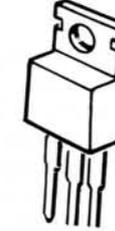
B1



B2



B3



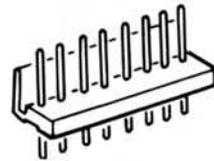
C1



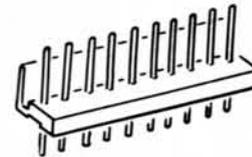
C2



C3



C4



D1



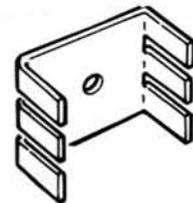
D2



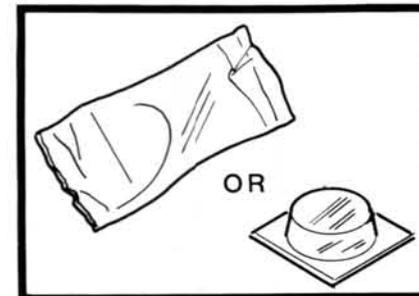
D3



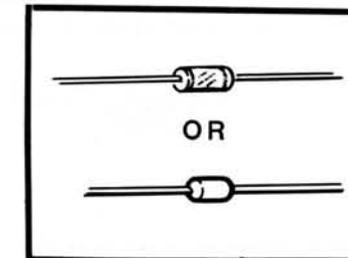
E1



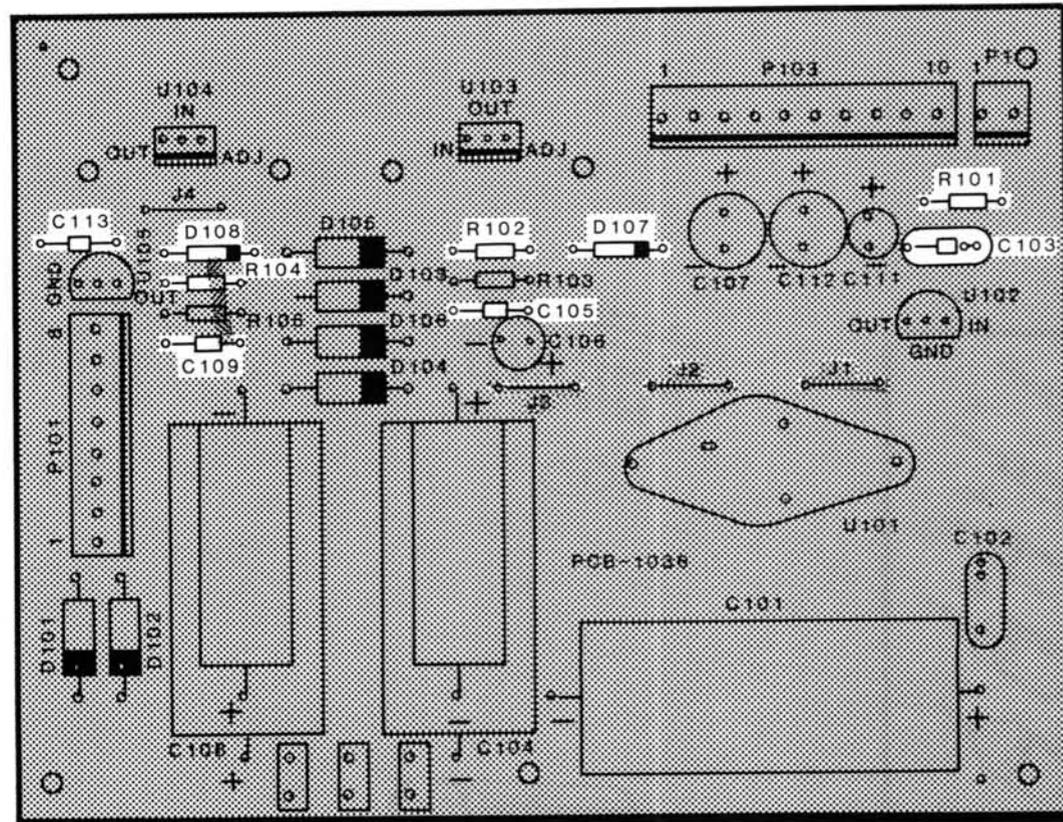
E2



F1

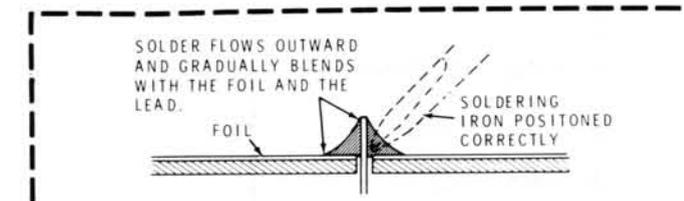


Model ET-3600



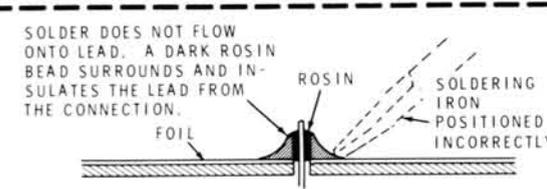
PICTORIAL 1-1

**A GOOD SOLDER CONNECTION**

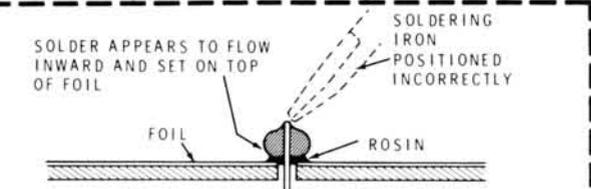


When you heat the lead and the circuit board foil at the same time, the solder will flow evenly onto the lead and the foil. The solder will make a good electrical connection between the lead and the foil.

**POOR SOLDER CONNECTIONS**



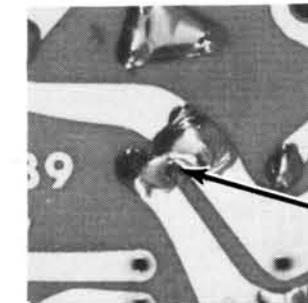
When the lead is not heated sufficiently, the solder will not flow onto the lead as shown above. To correct, reheat the connection and, if necessary, apply a small amount of additional solder to obtain a good connection.



When the foil is not heated sufficiently the solder will blob on the circuit board as shown above. To correct, reheat the connection and, if necessary, apply a small amount of additional solder to obtain a good connection.

**SOLDER BRIDGES**

A solder bridge between two adjacent foils is shown in photograph A. Photograph B shows how the connection should appear. A solder bridge may occur if you accidentally touch an adjacent previously soldered connection, if you use too much solder, or if you "drag" the soldering iron across other foils as you remove it from the connection. A good rule to follow is: always take a good look at the foil area around each lead before you solder it. Then, when you solder the connection, make sure the solder remains in this area and does not bridge to another foil. This is especially important when the foils are small and close together. NOTE: It is alright for solder to bridge two connections on the same foil.



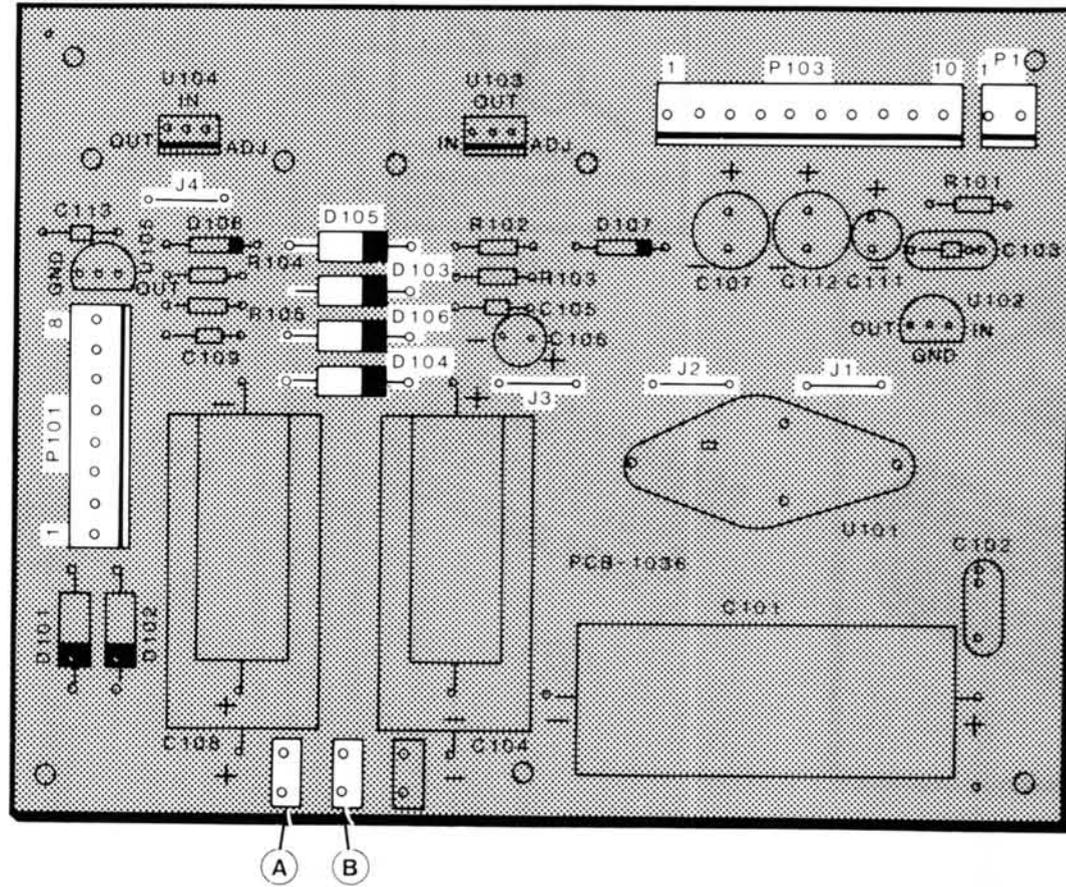
**A**  
**SOLDER BRIDGE**

Use only enough solder to make a good connection, and lift the soldering iron straight up from the circuit board. If a solder bridge should develop, turn the circuit board foil-side-down and heat the solder between connections. The excess solder will run onto the tip of the soldering iron, and this will remove the solder bridge. NOTE: The foil side of most circuit boards has a coating on it called "solder resist." This is a protective insulation to help prevent solder bridges.

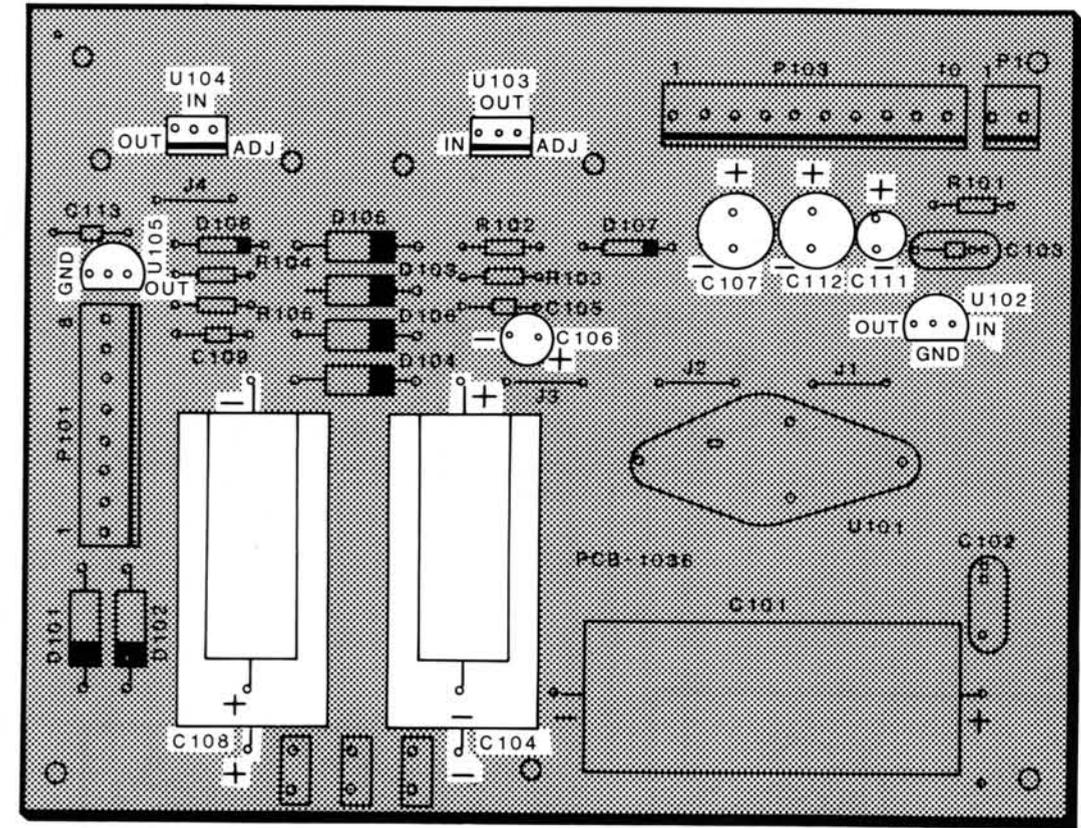


**B**

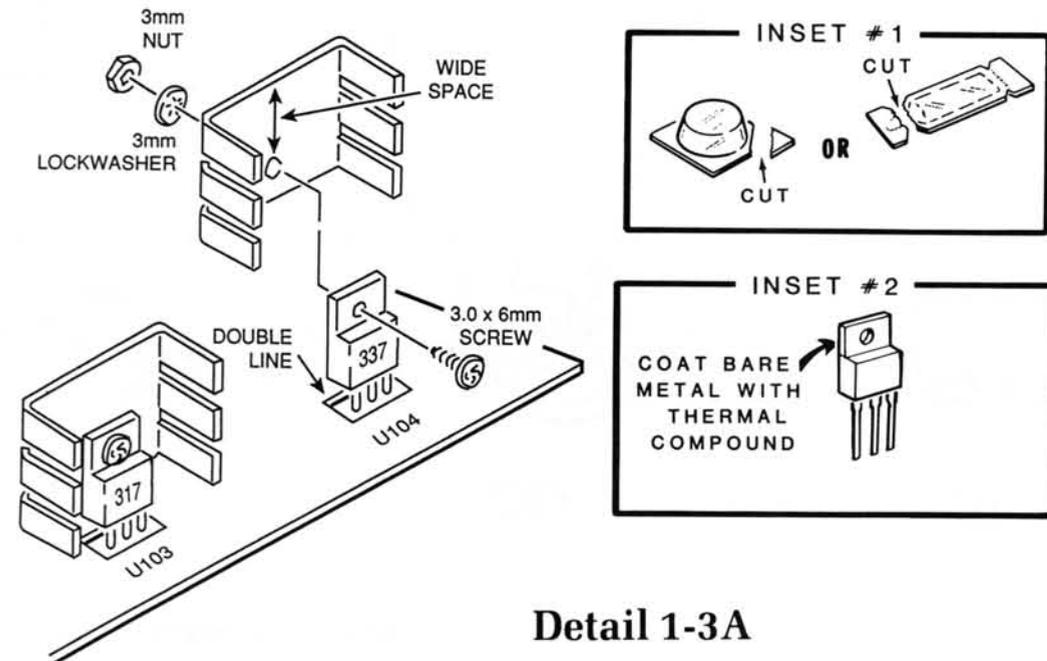
Detail 1-1A



PICTORIAL 1-2



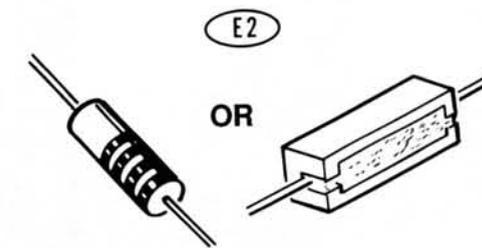
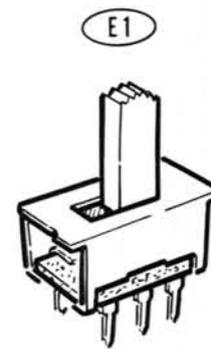
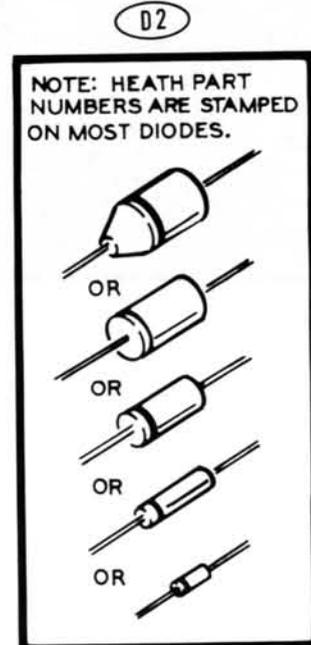
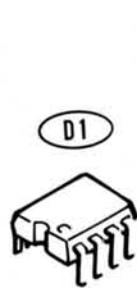
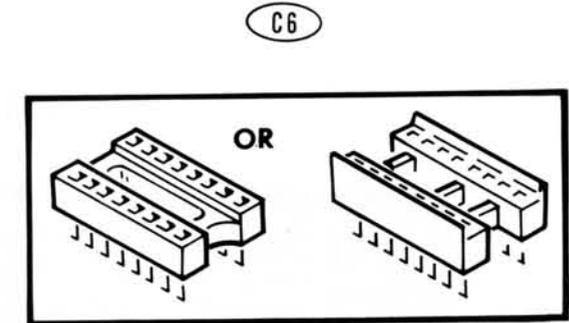
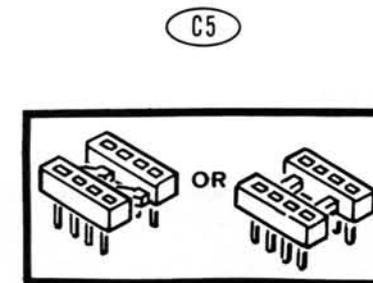
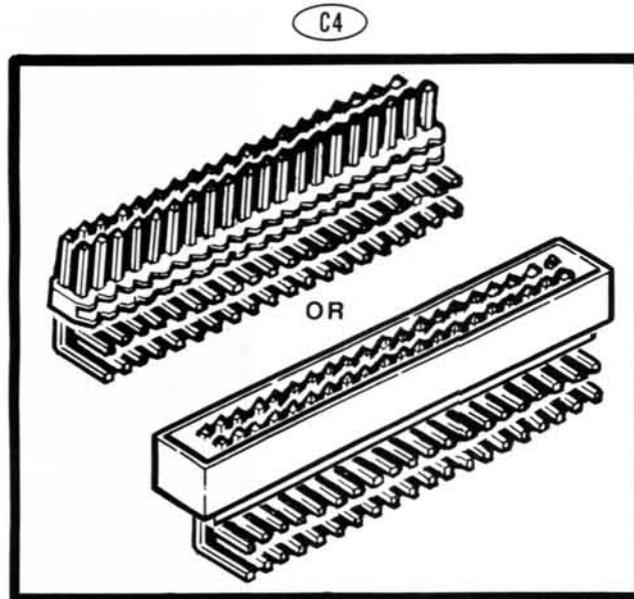
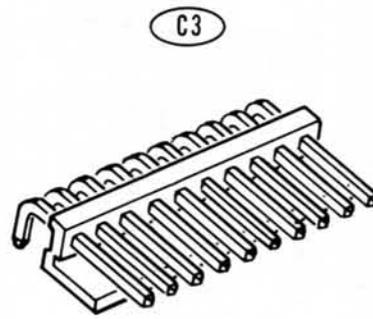
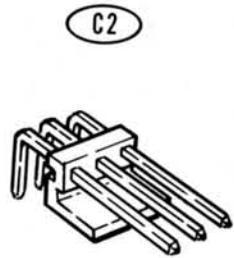
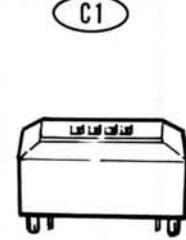
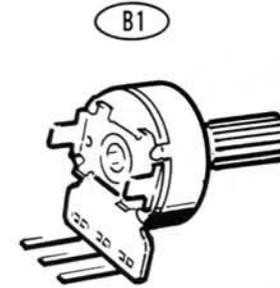
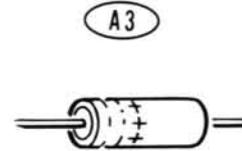
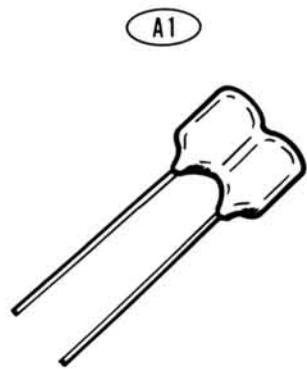
PICTORIAL 1-3

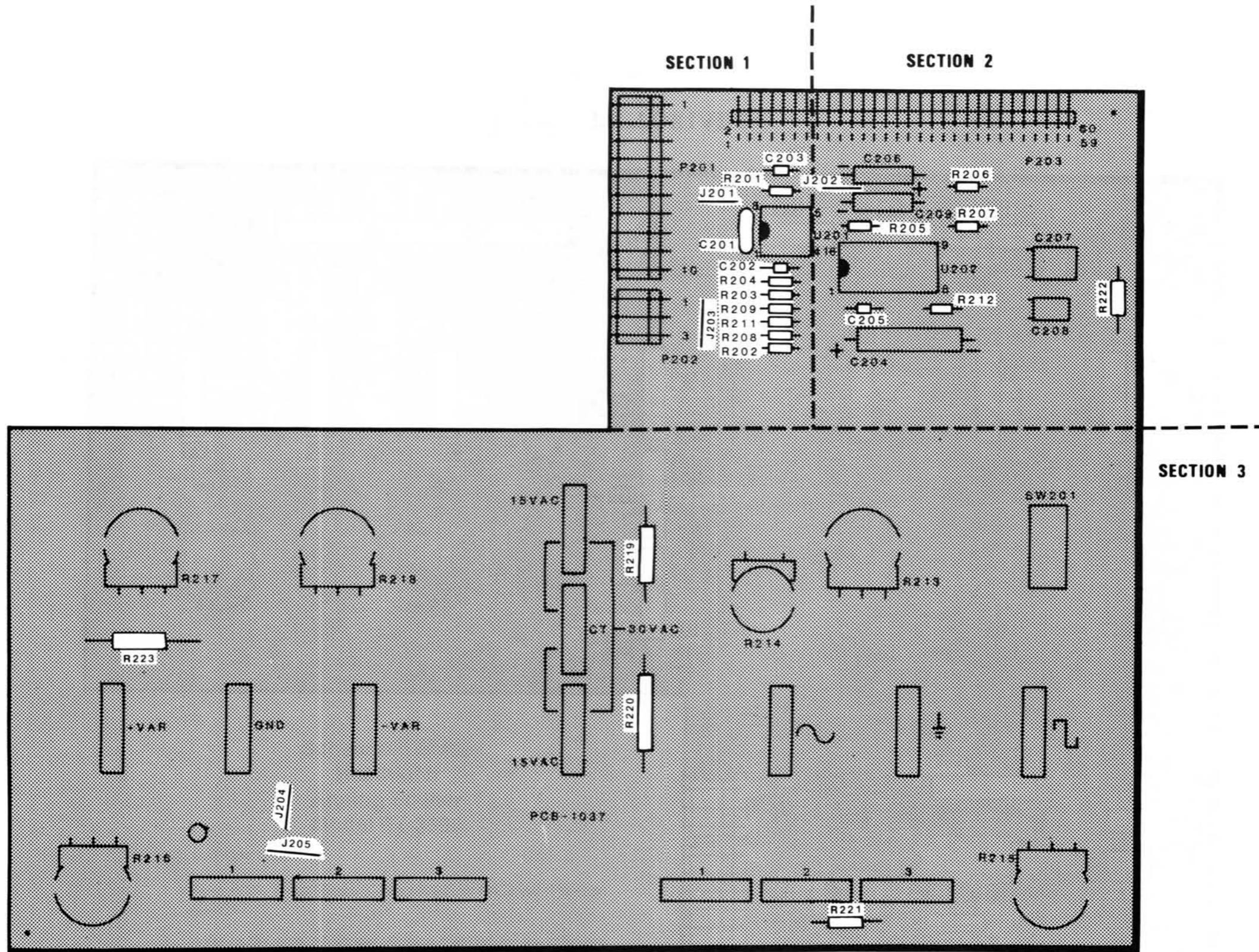


Detail 1-3A

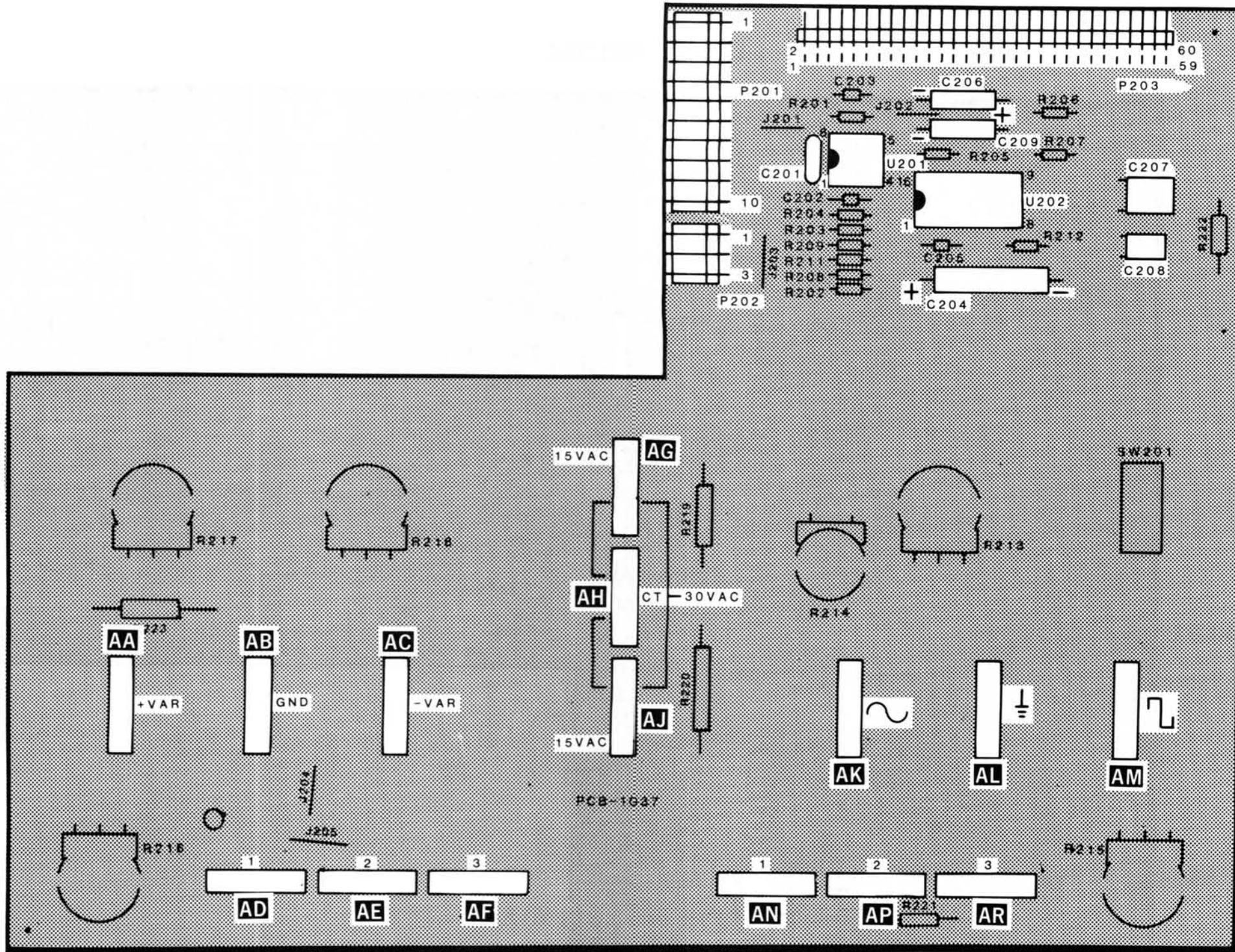
# MAIN CIRCUIT BOARD PARTS PICTORIAL

NOTE: THE PARTS YOU RECEIVE IN YOUR KIT MAY LOOK SLIGHTLY DIFFERENT THAN THOSE SHOWN BELOW.





PICTORIAL 2-1



PICTORIAL 2-2

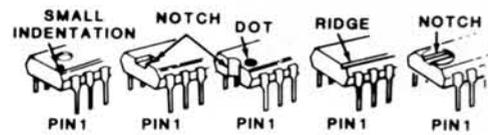
The pins on the IC's may be bent out at an angle, so they do not line up with the holes in the IC socket. DO NOT try to install an IC without first bending the pins as described below. To do so may damage the IC pins or the socket, causing intermittent contact.



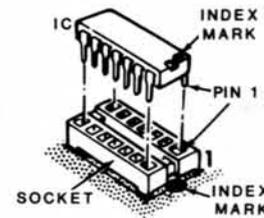
Before you install an IC, lay it down on its side as shown below and very carefully roll it toward the pins to bend the lower pins into line. Then turn the IC over and bend the pins on the other side in the same manner.



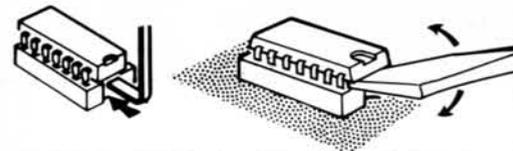
Compare the IC to the drawing shown below. Then determine which end of the IC is the pin 1 end.



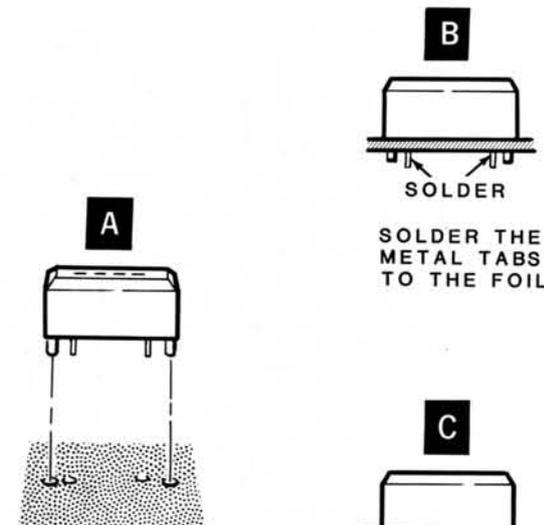
Position the pin 1 end of the IC over the index mark on the circuit board. Then start the pins into the socket. Make sure that all of the pins are started; then push the IC down firmly. NOTE: An IC pin can become bent under the IC and it will appear as though it is correctly installed in the socket.



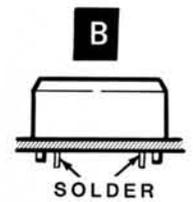
If it is ever necessary to remove an IC from its socket, use an IC puller (if one was supplied with your kit) or a small-bladed screwdriver as shown. Push the end of the IC puller or screwdriver blade between the IC and the socket and carefully lift the IC free. If any IC pins become bent, straighten them carefully.



Detail 2-2A



BE SURE THE METAL TABS ARE STRAIGHT. THEN INSTALL THE BLOCK AS SHOWN.

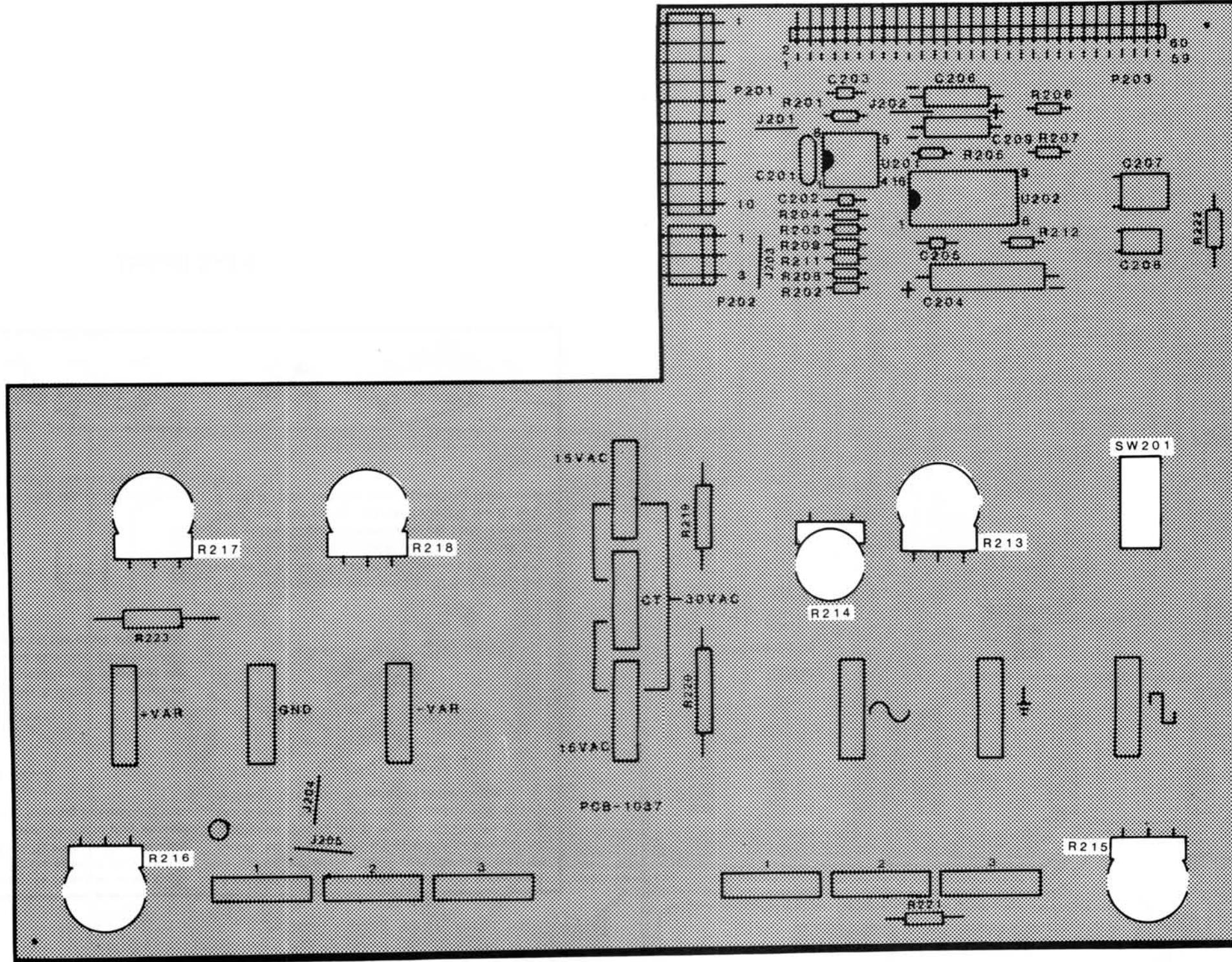


SOLDER THE METAL TABS TO THE FOIL.



FLATTEN THE END POSTS WITH YOUR SOLDERING IRON TIP.

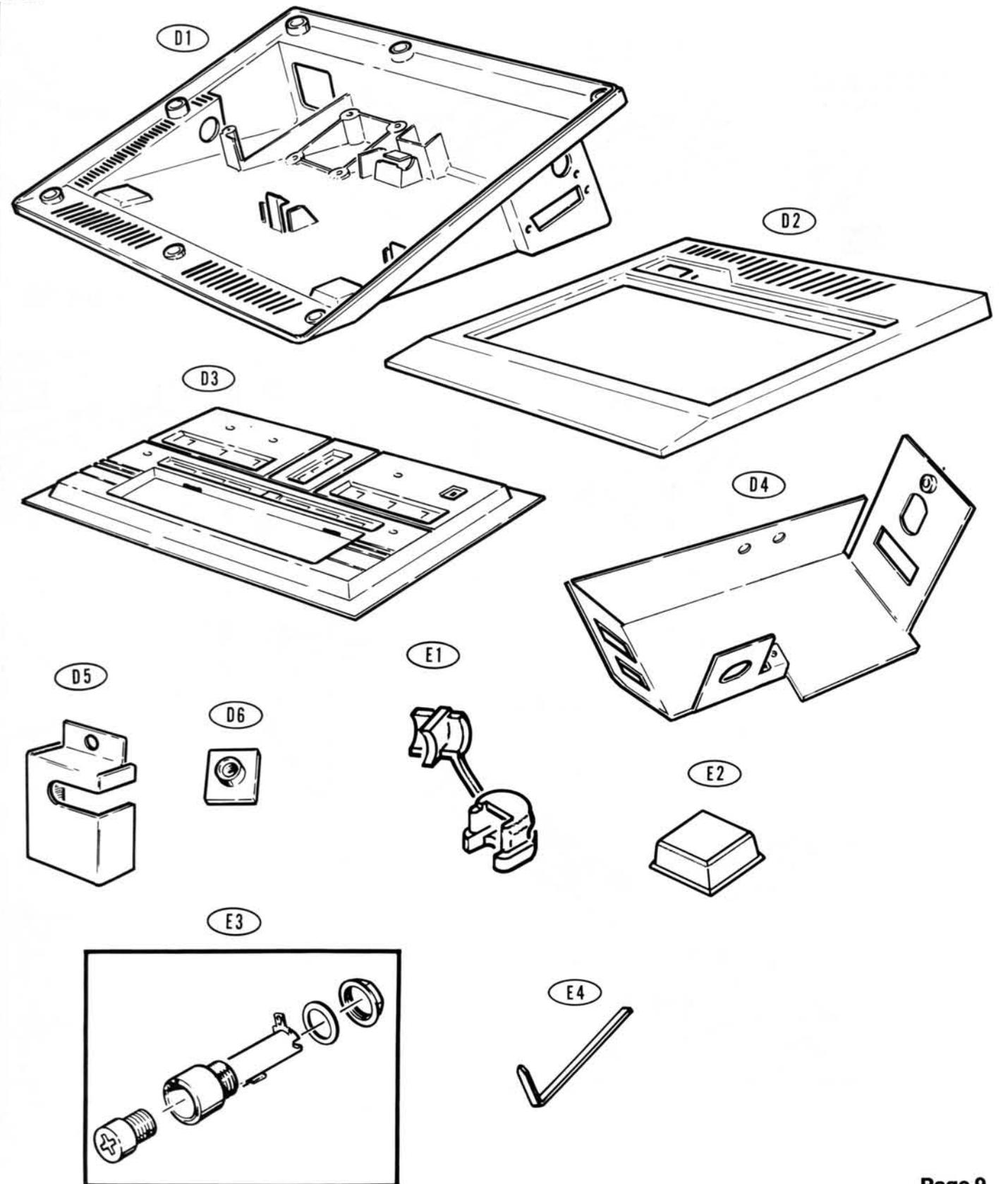
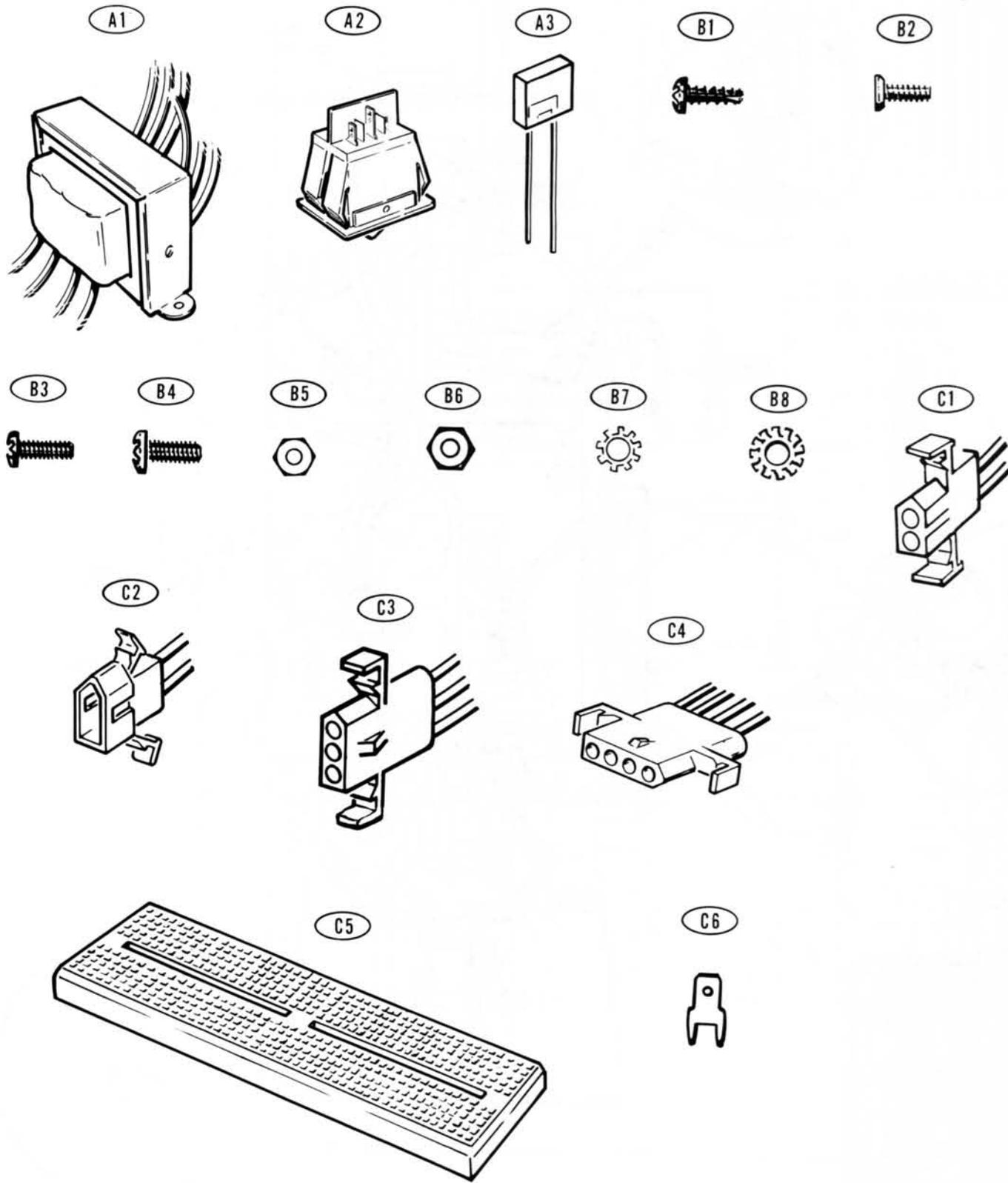
Detail 2-2B



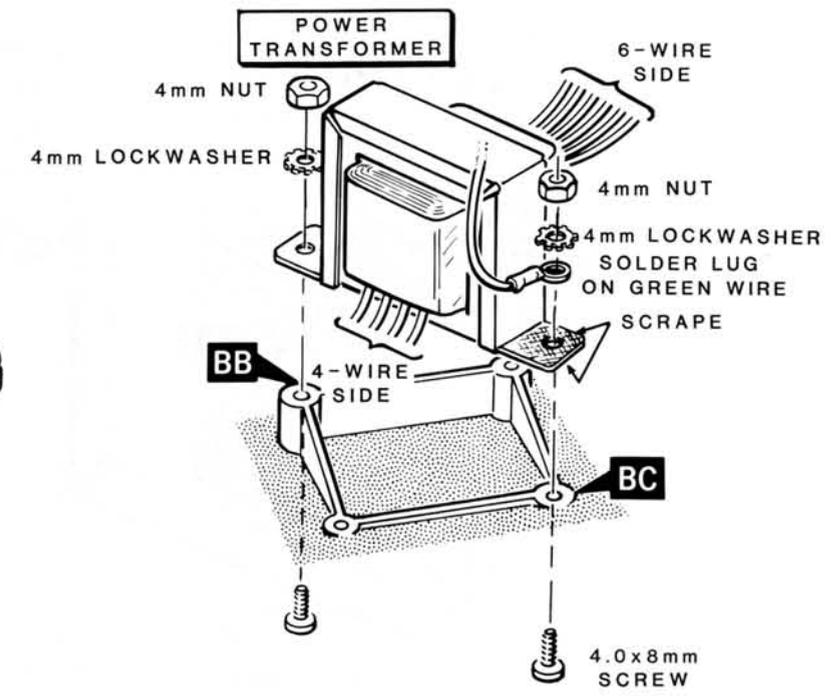
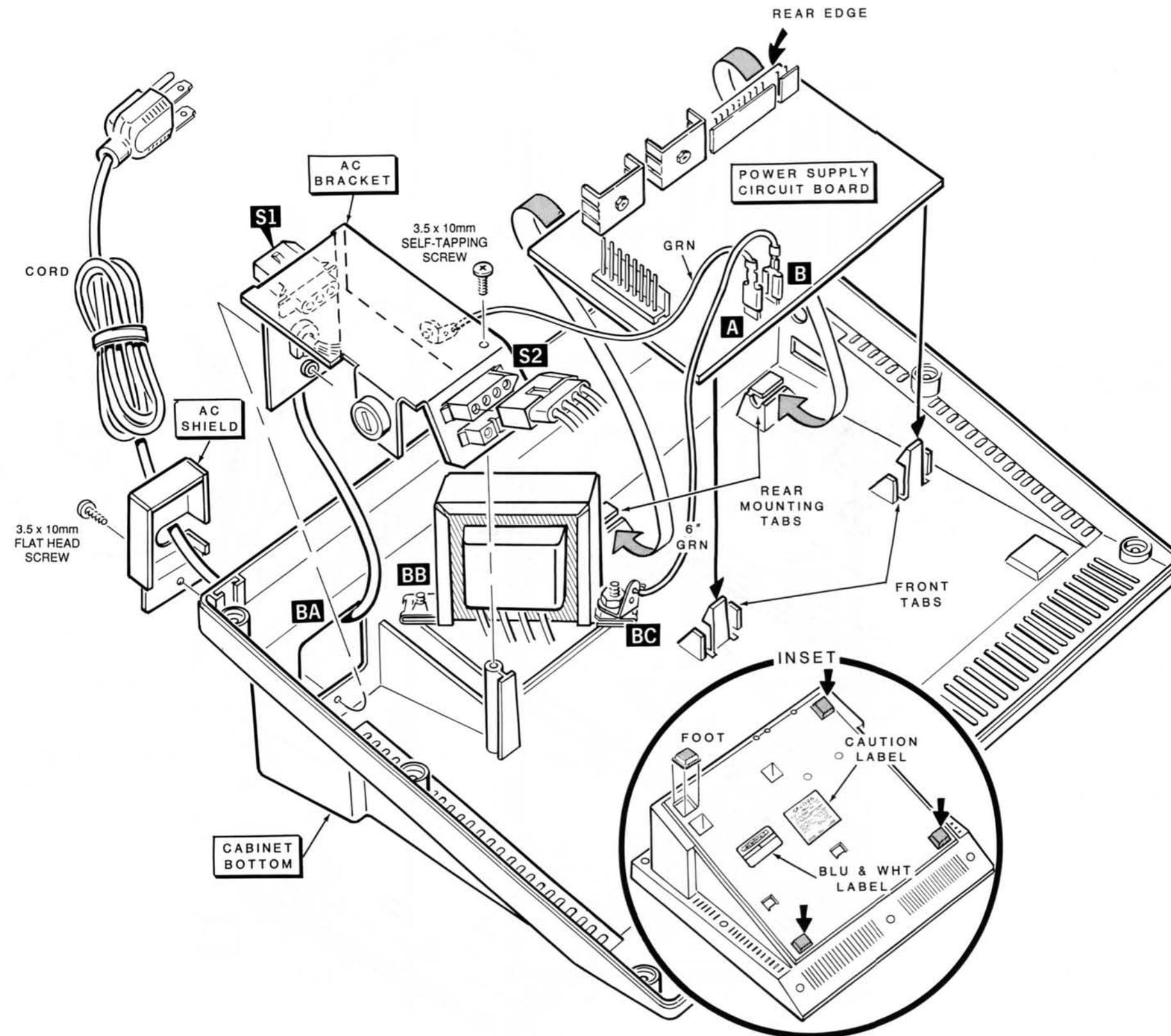
PICTORIAL 2-3

# CABINET PARTS PICTORIAL

NOTE: THE PARTS YOU RECEIVE IN YOUR KIT MAY LOOK SLIGHTLY DIFFERENT THAN THOSE SHOWN BELOW.



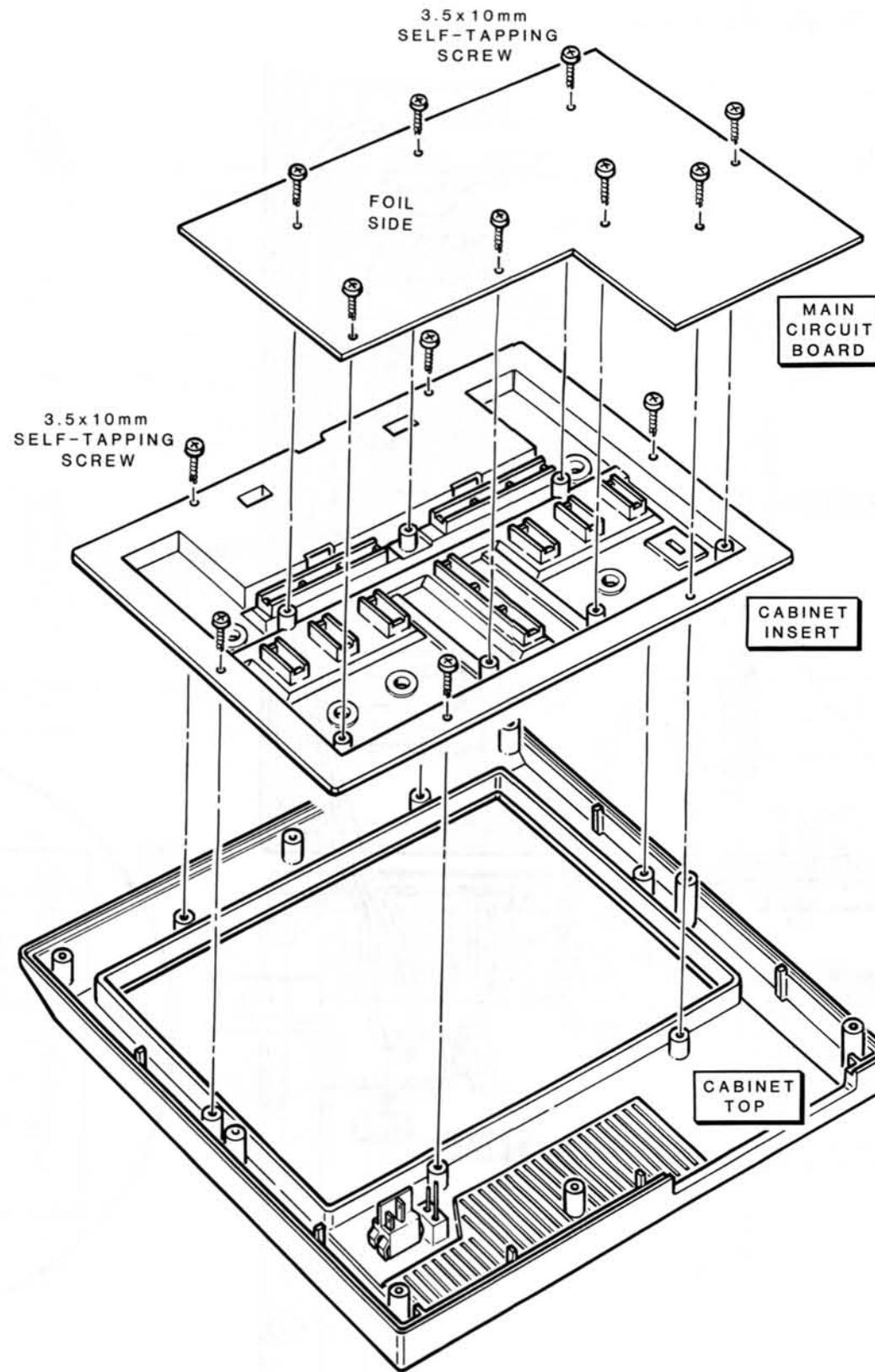




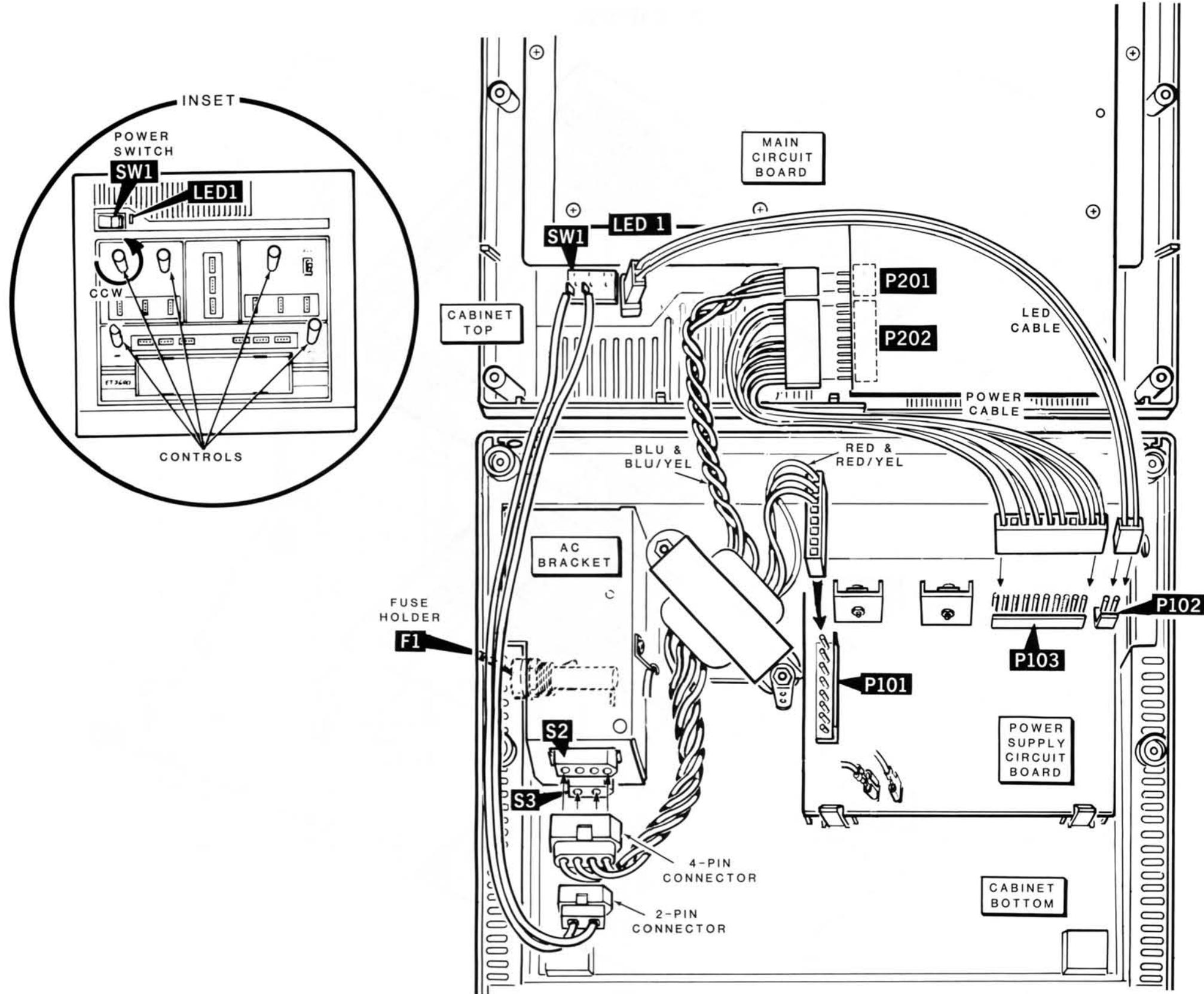
Detail 3-2A

PICTORIAL 3-2

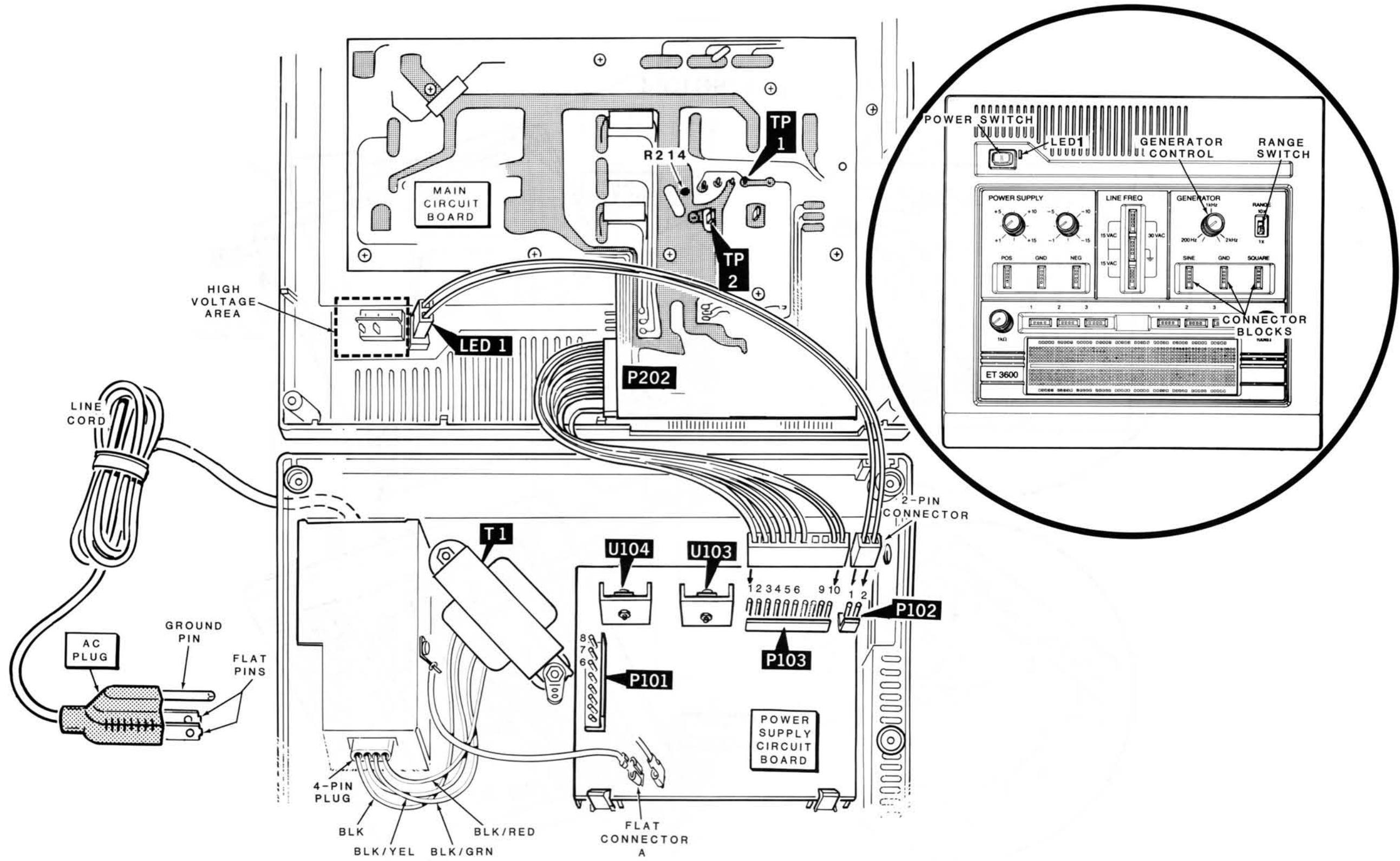




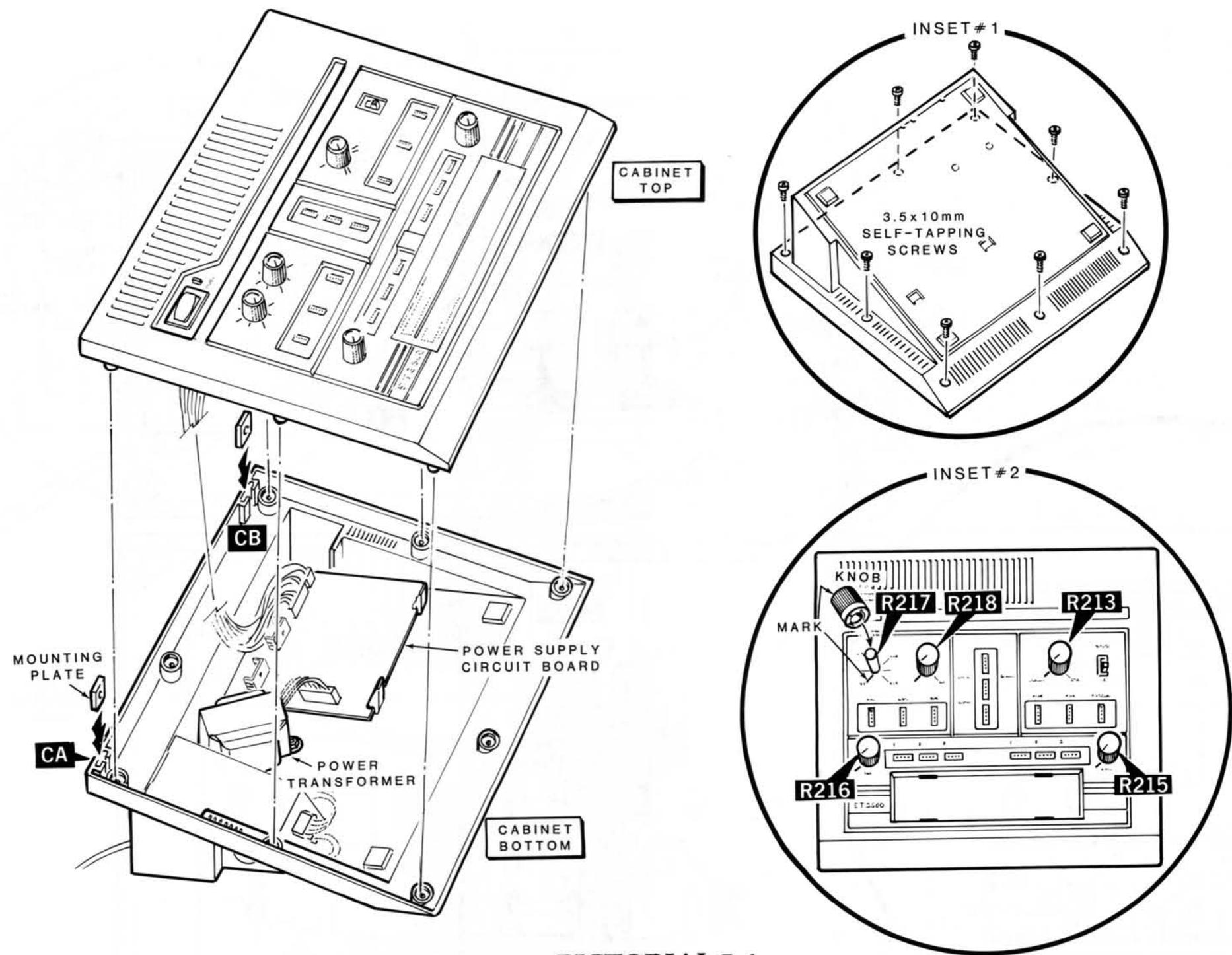
**Detail 3-3B**



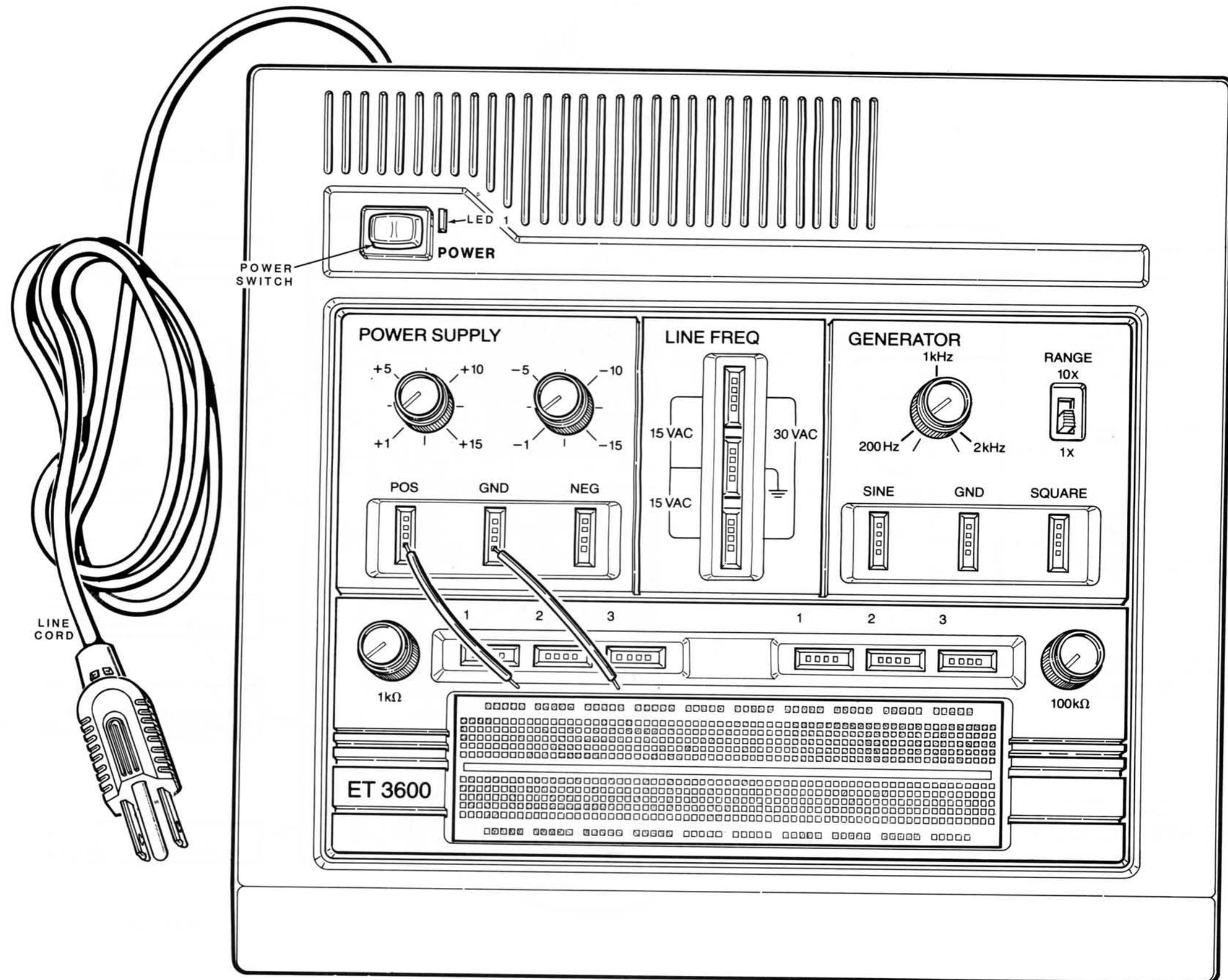
PICTORIAL 3-4



PICTORIAL 4-1



PICTORIAL 5-1



POWER SWITCH

POWER

LED 1

POWER SUPPLY

LINE FREQ

GENERATOR

RANGE

10X

1X

+5 +10 -5 -10  
+1 +15 -1 -15

15 VAC 30 VAC  
15 VAC

1kHz  
200Hz 2kHz

POS GND NEG

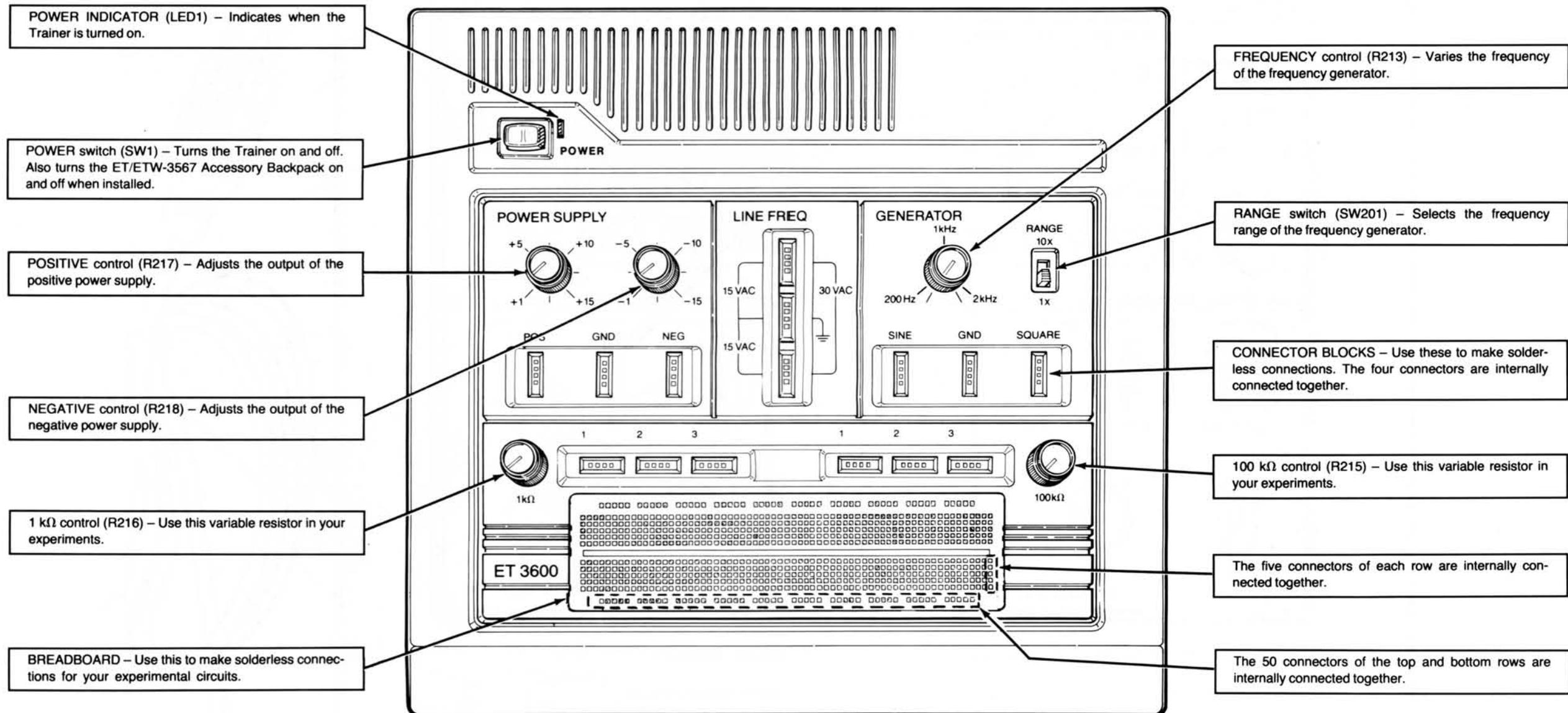
SINE GND SQUARE

LINE CORD

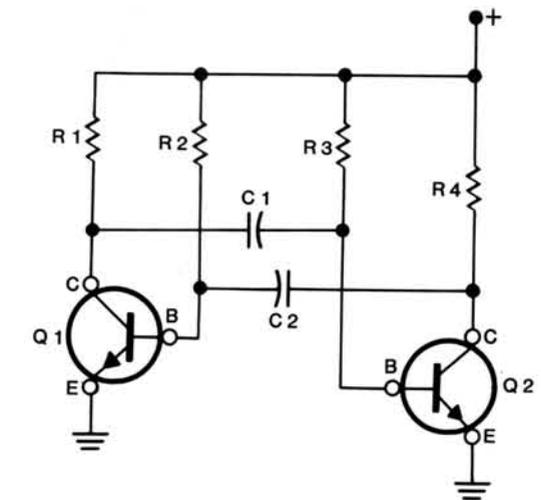
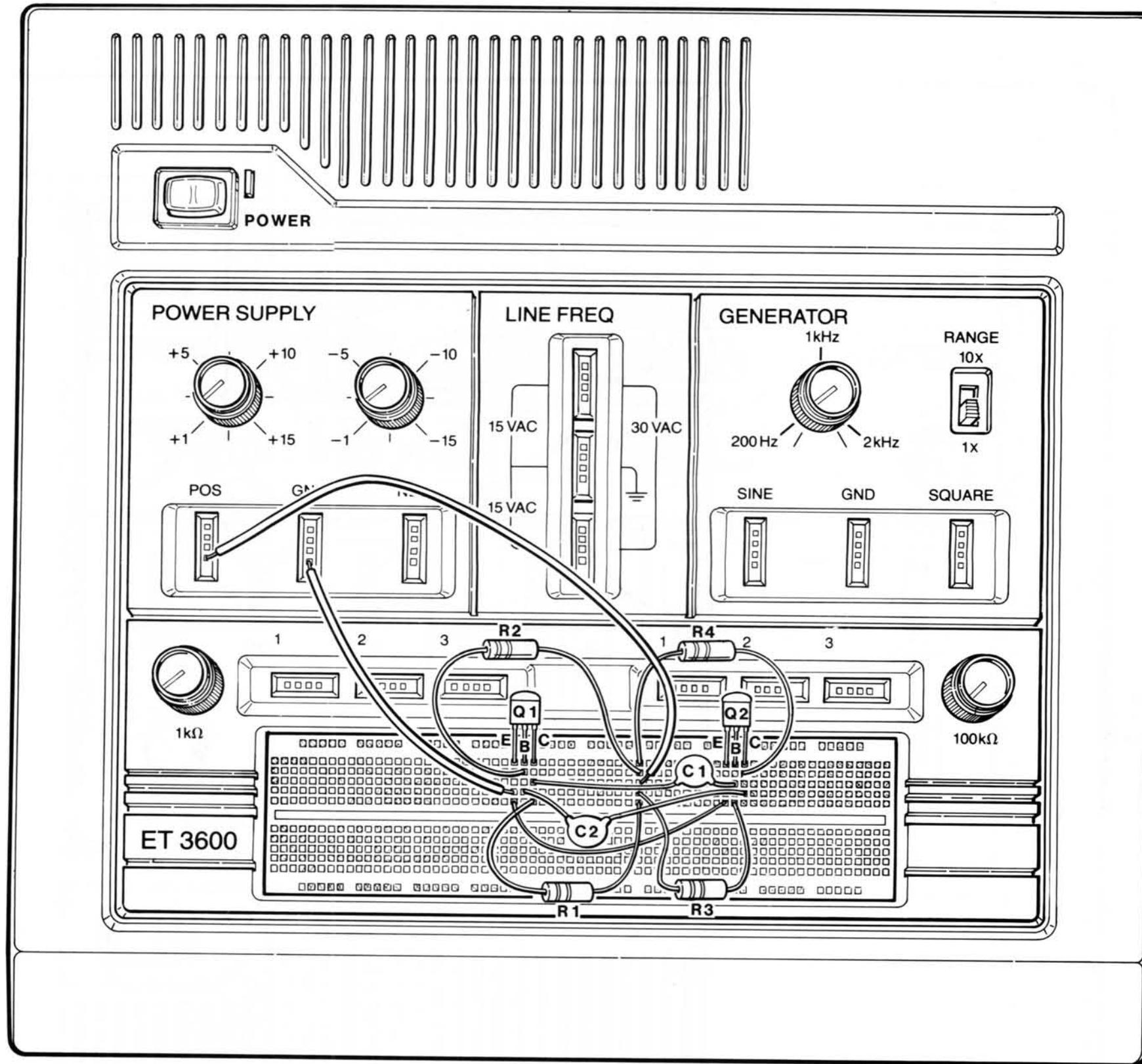
1 2 3 1 2 3  
1kΩ 100kΩ

ET 3600

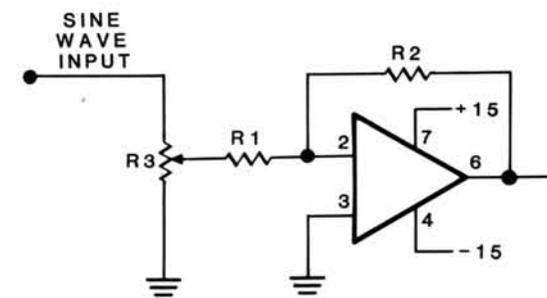
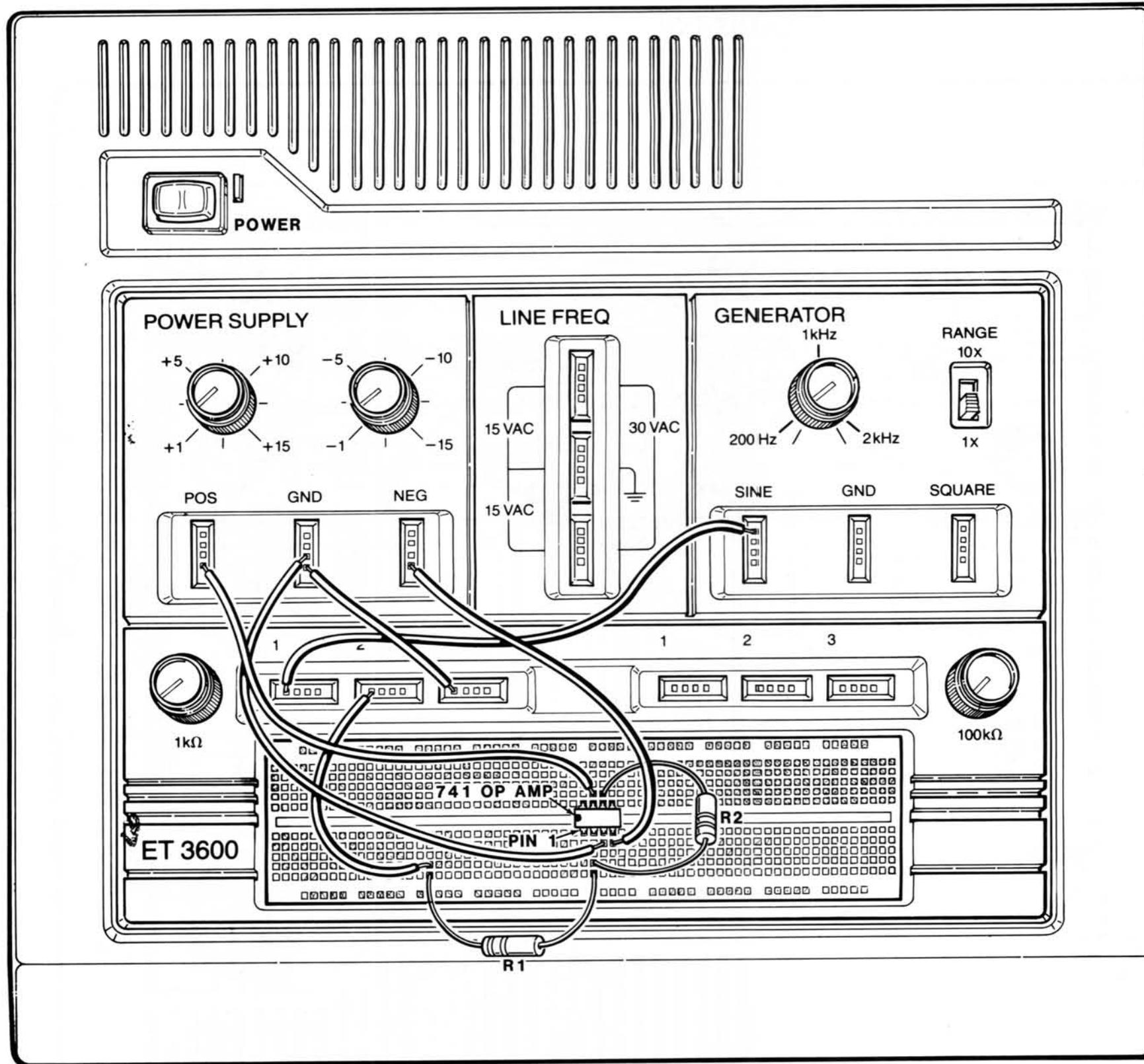
PICTORIAL 5-2



PICTORIAL 6-1



EXPERIMENT 1

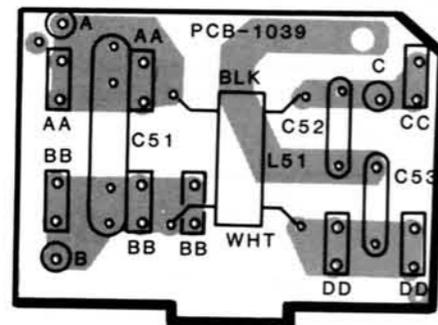


EXPERIMENT 2

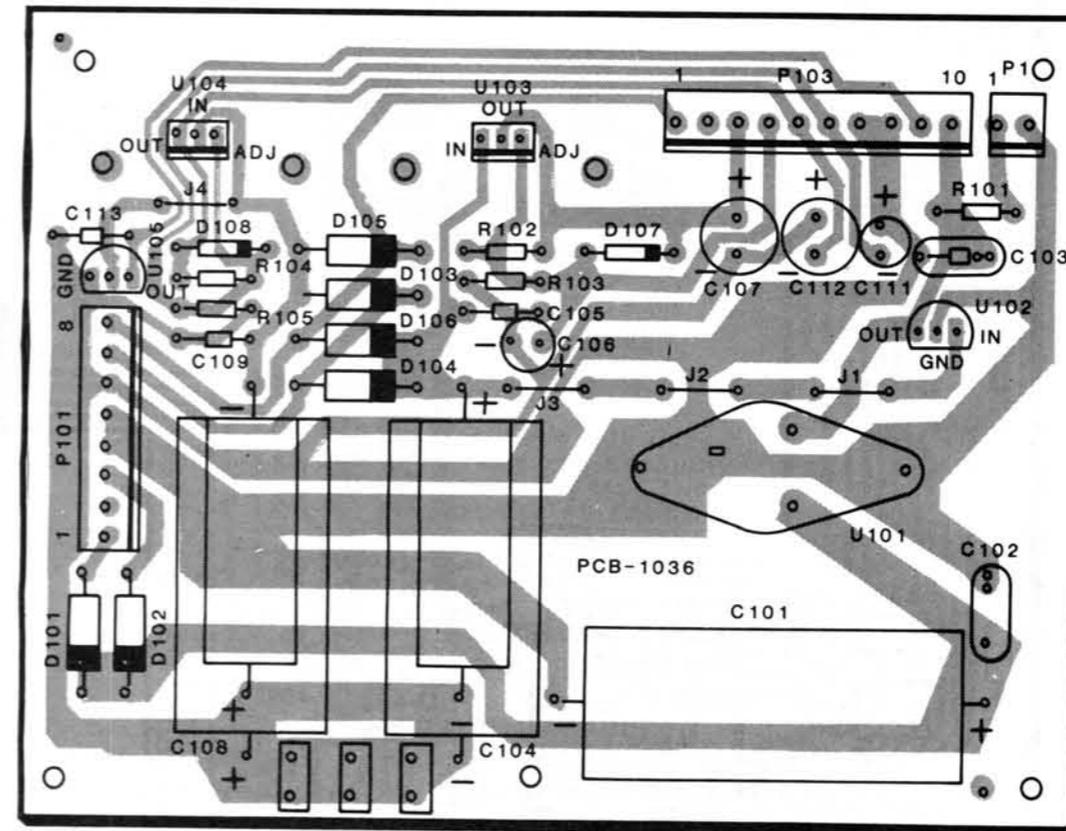
## CIRCUIT BOARD X-RAY VIEWS

To find the PART NUMBER of a component for the purpose of ordering a replacement part:

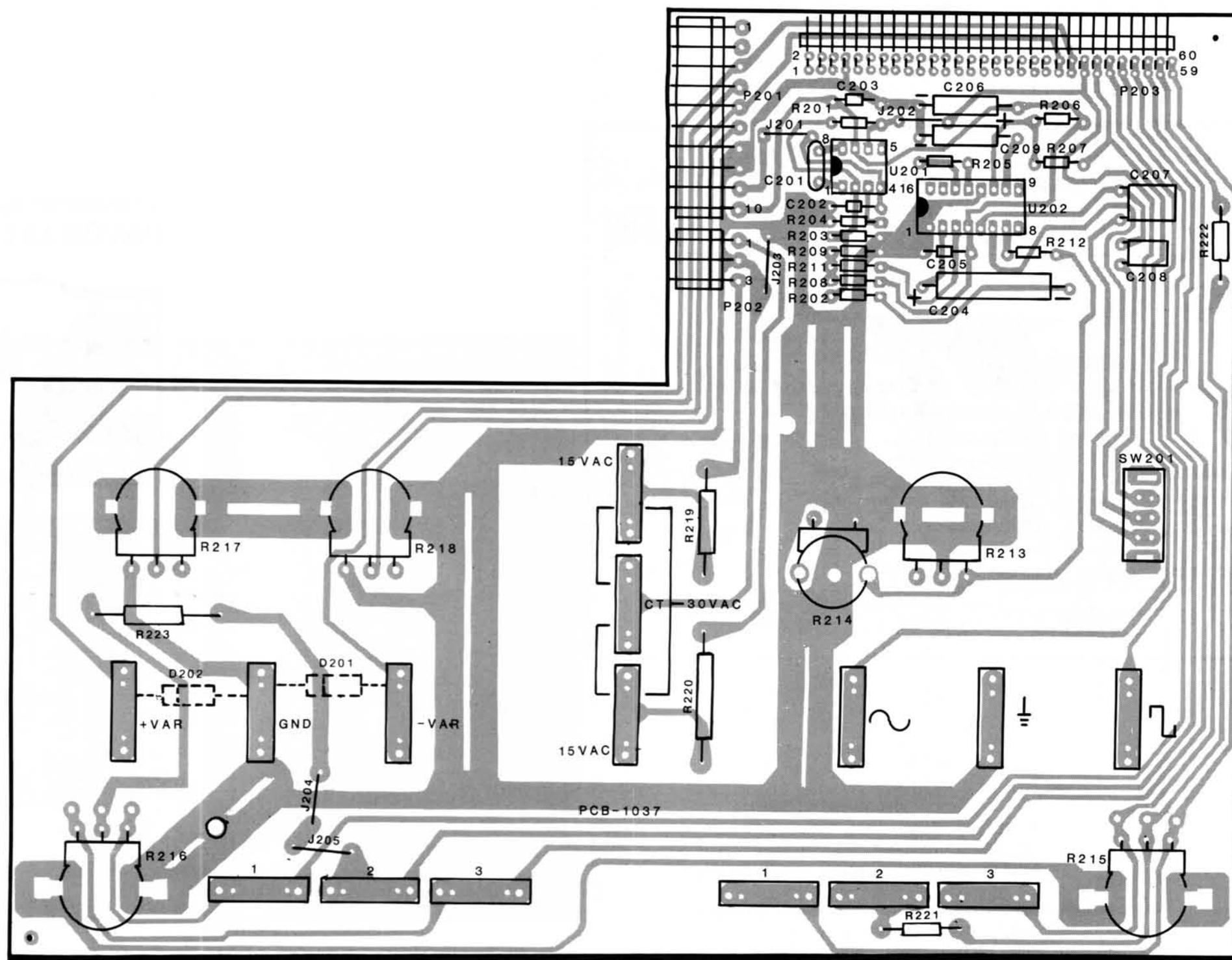
- A. Find the circuit component part number on the appropriate X-Ray View.
- B. Locate the same number in the "Circuit Component Number" column of the corresponding "Parts List".
- C. Adjacent to the circuit component number, you will find the PART NUMBER and DESCRIPTION, which you must supply when you order a replacement part.



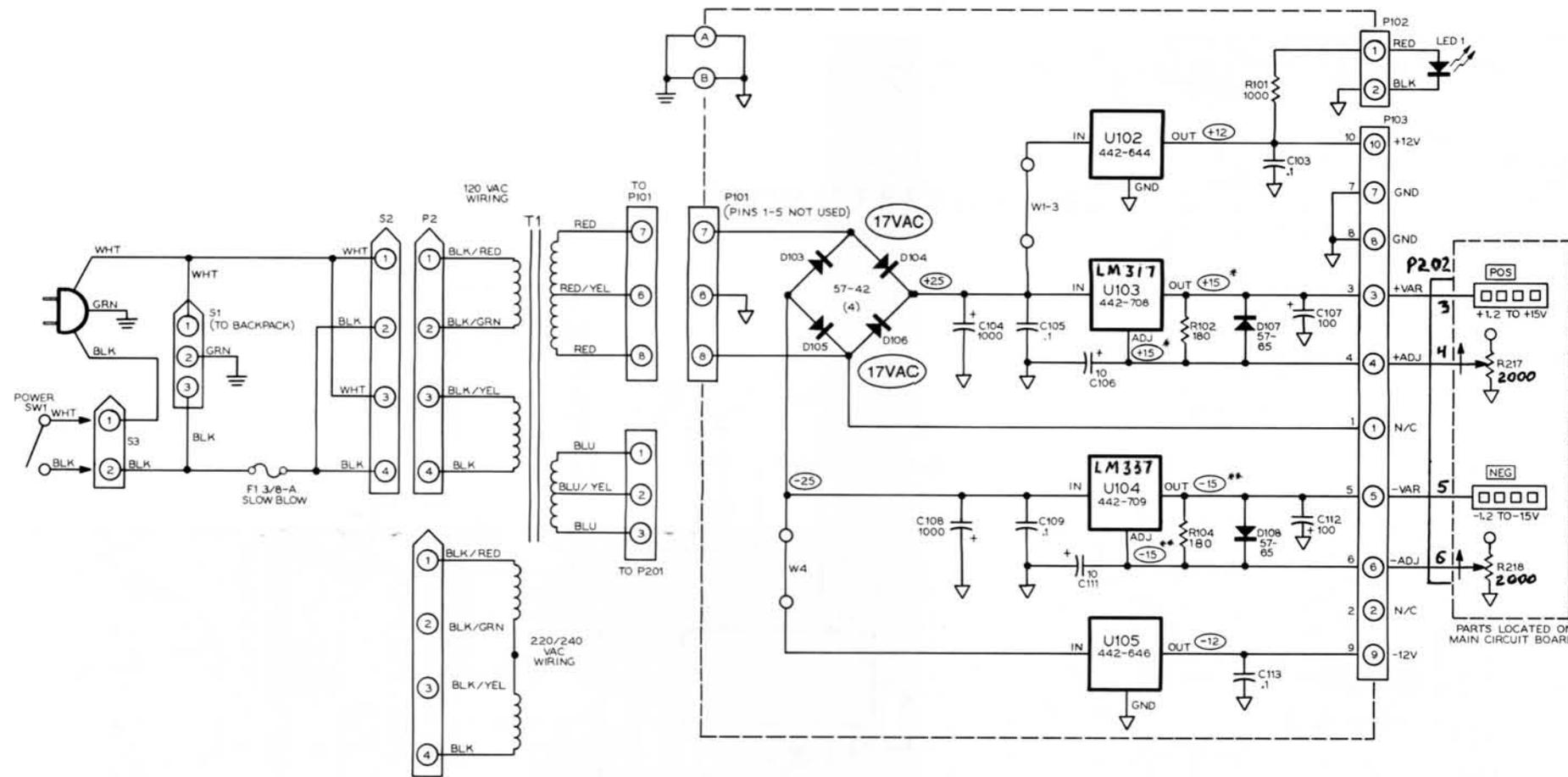
**AC CIRCUIT BOARD**  
(Shown from the component side.)



**POWER SUPPLY CIRCUIT BOARD**  
(Shown from the component side.)



**MAIN CIRCUIT BOARD**  
 (Shown from the component side.)



## POWER SUPPLY CIRCUIT BOARD

### Schematic of the Heathkit® Analog Trainer Model ET-3600

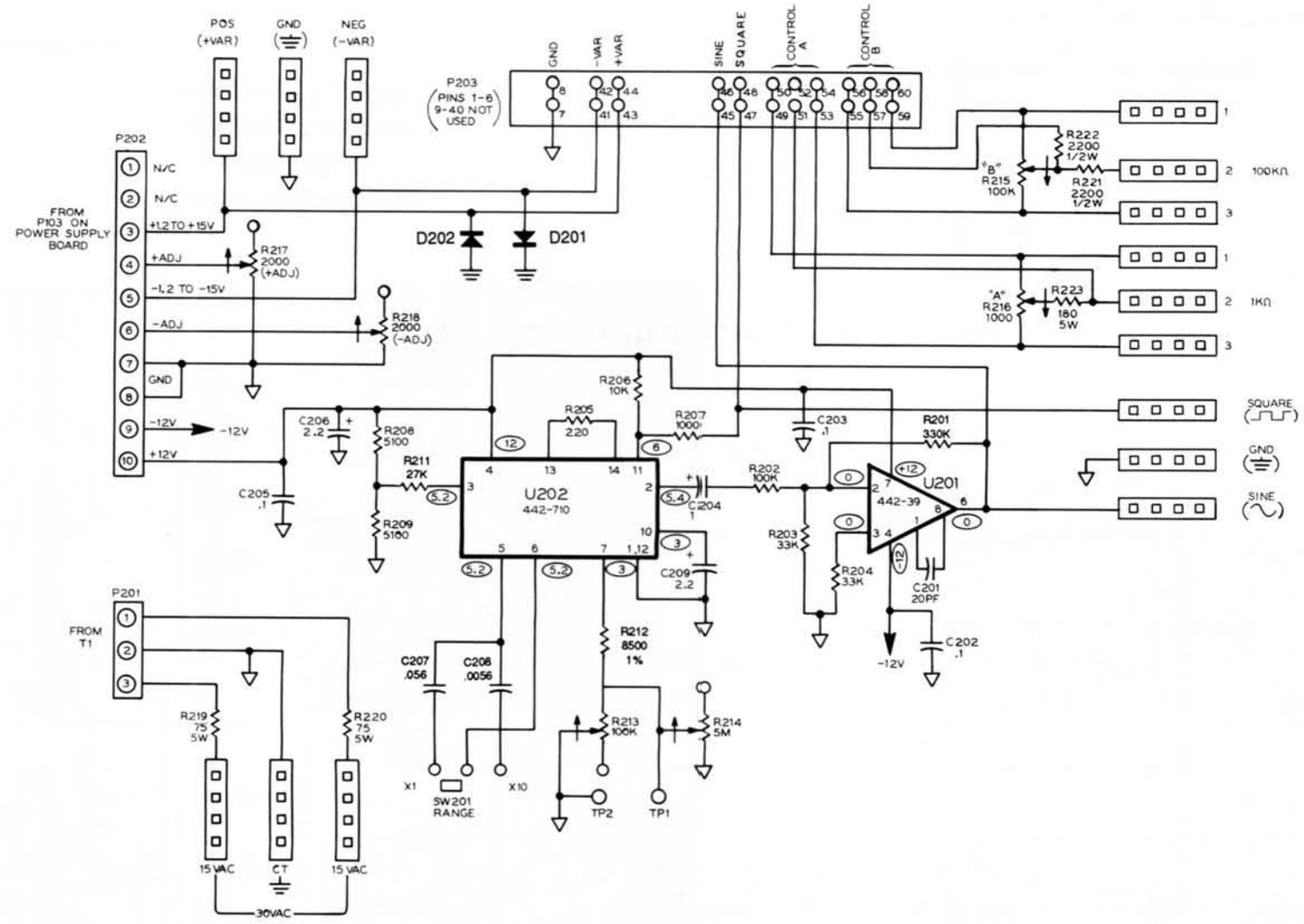
#### SCHEMATIC NOTES:

1. Refer to the "Circuit Board X-Ray Views" for the physical location of parts.
2. Refer to the component identification sections for the tolerance and rating of components shown on the Schematic.
3. All capacitor values are in  $\mu\text{F}$  (microfarads) unless otherwise indicated.
4. All resistors are 1/4-watt, 5% unless otherwise specified. All resistor values are in ohms (k = 1000), M = 1,000,000).

5. This symbol indicates chassis ground.
6. This symbol indicates circuit board ground.
7. This symbol indicates a DC voltage measured between the indicated point and circuit board ground.
8. This symbol indicates no connection.
9. This symbol indicates a connection.
10. This symbol indicates clockwise rotation of a control.

\* Voltage varies with setting of control R217.

\*\* Voltage varies with setting of control R218.



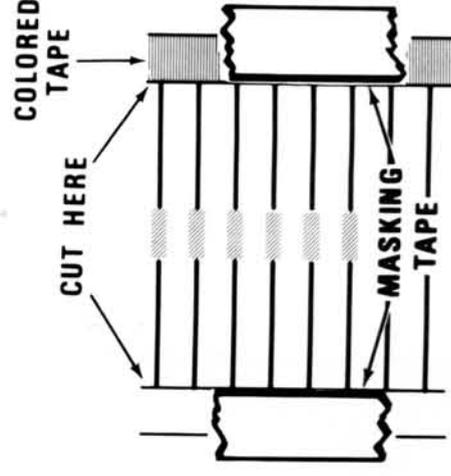
MAIN CIRCUIT BOARD

# TAPED COMPONENT CHART

## Read and Follow These Instructions Before You Install the First Component

Use masking tape, as shown in the Taping Detail, to tape the component strips over the component drawings. Be sure each part on the strip is over its correct illustration; and that resistor color bands, and any part numbers, match their drawings. Cut the tape, as necessary, to align each section. Do not remove any parts from the strip until they are called for in the assembly instructions.

NOTE: Never attempt to pull the components free from the tape; gum residue from the tape could cause an intermittent solder connection. Use diagonal cutters to remove each part as it is called for in the assembly instructions. Cut the leads at the inside edge of the tape as shown.



Taping Detail

## Power Supply Circuit Board

- .1  $\mu$ F (104) ceramic capacitor.
- 1N4002 diode (#57-65).
- 180  $\Omega$  (brn-gry-brn) resistor.
- .1  $\mu$ F (104) ceramic capacitor.
- 180  $\Omega$  (brn-gry-brn) resistor.
- .1  $\mu$ F (104) ceramic capacitor.
- 1N4002 diode (#57-65).
- 1000  $\Omega$  (brn-blk-red) resistor.
- .1  $\mu$ F (104) ceramic capacitor.

## Main Circuit Board

### SECTION 1

- 330 k $\Omega$  (org-org-yel) resistor.
- .1  $\mu$ F (104) ceramic capacitor.
- .1  $\mu$ F (104) ceramic capacitor.
- 33 k $\Omega$  (org-org-org) resistor.
- 33 k $\Omega$  (org-org-org) resistor.
- 5100  $\Omega$  (grn-brn-red) resistor.
- 27 k $\Omega$  (red-viol-org) resistor.
- 5100  $\Omega$  (grn-brn-red) resistor.
- 100 k $\Omega$  (brn-blk-yel) resistor.

### SECTION 2

- 200  $\Omega$  (red-blk-brn) resistor.
- .1  $\mu$ F (104) ceramic capacitor.
- 10 k $\Omega$  (brn-blk-org) resistor.
- 1000  $\Omega$  (brn-blk-red) resistor.
- 8450  $\Omega$ , 1% (gry-yel-grn-brn) resistor.

# POWER SUPPLY CIRCUIT BOARD PARTS PICTORIAL

CUT HERE





