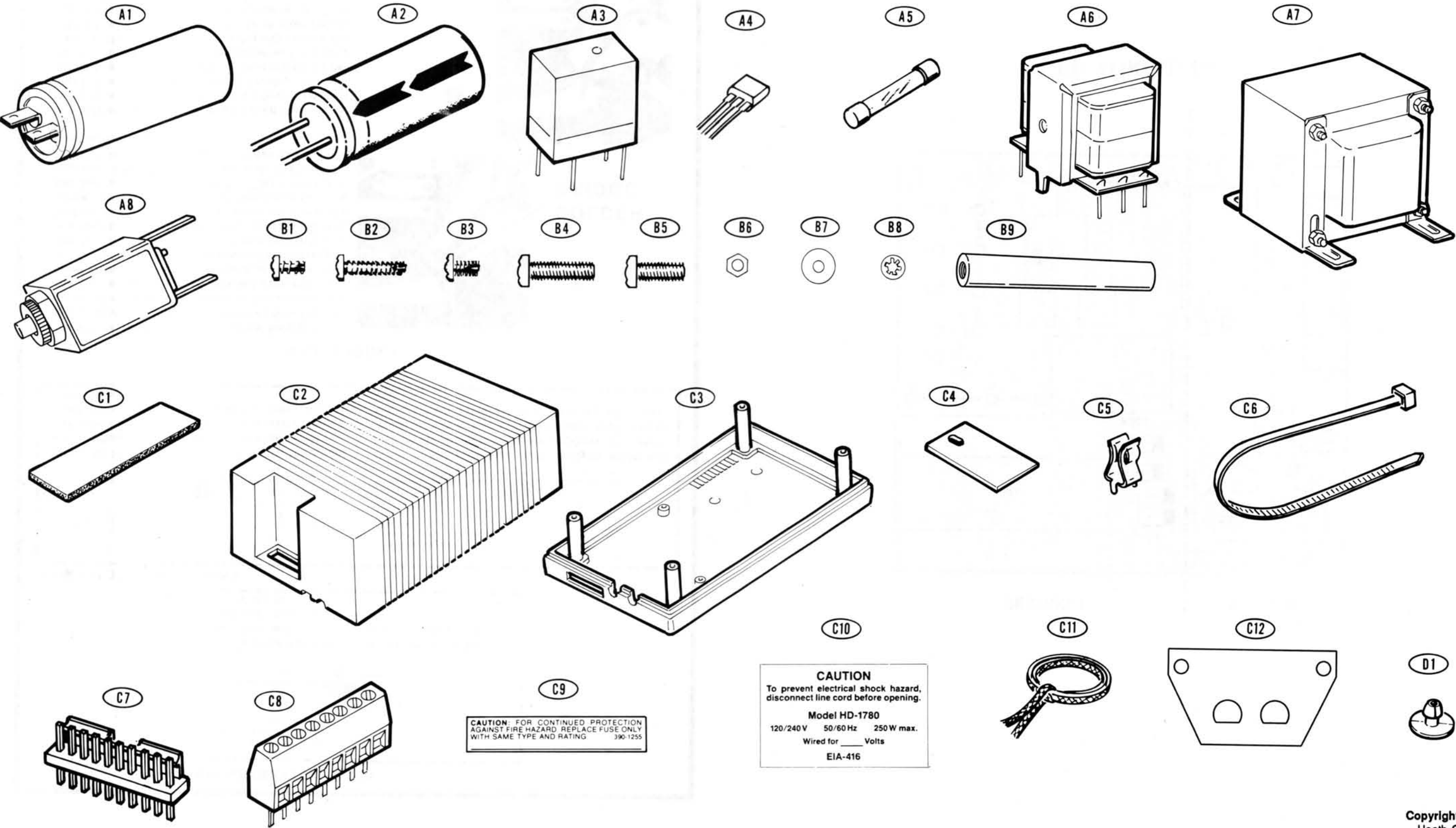


ILLUSTRATION BOOKLET

POWER UNIT PARTS PICTORIAL

Part of 595-4322



CAUTION: FOR CONTINUED PROTECTION
AGAINST FIRE HAZARD REPLACE FUSE ONLY
WITH SAME TYPE AND RATING 390-1255

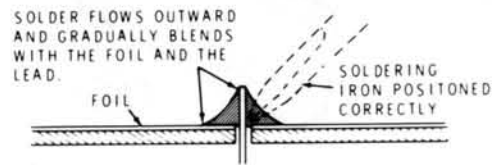
CAUTION
To prevent electrical shock hazard,
disconnect line cord before opening.

Model HD-1780
120/240 V 50/60 Hz 250 W max.
Wired for _____ Volts
EIA-416

Model HD-1780

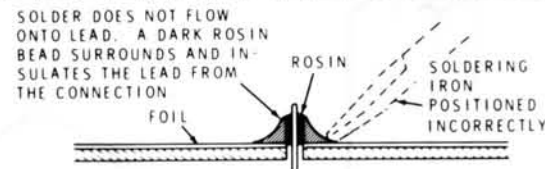
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A GOOD SOLDER CONNECTION

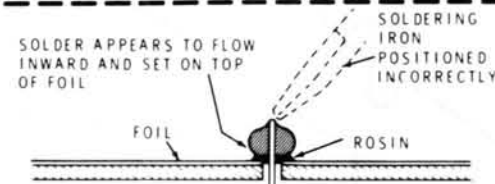


When you heat the lead and the circuit board foil at the same time, the solder will flow evenly onto the lead and the foil. The solder will make a good electrical connection between the lead and the foil.

POOR SOLDER CONNECTIONS



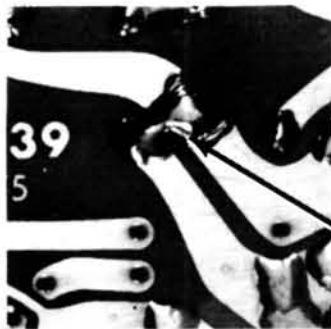
When the lead is not heated sufficiently, the solder will not flow onto the lead as shown above. To correct, reheat the connection and, if necessary, apply a small amount of additional solder to obtain a good connection.



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.

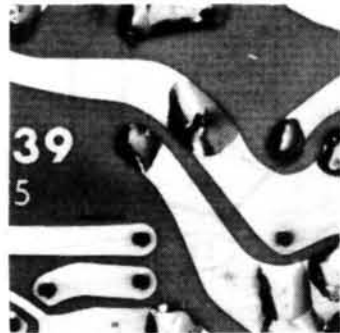
SOLDER BRIDGES

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



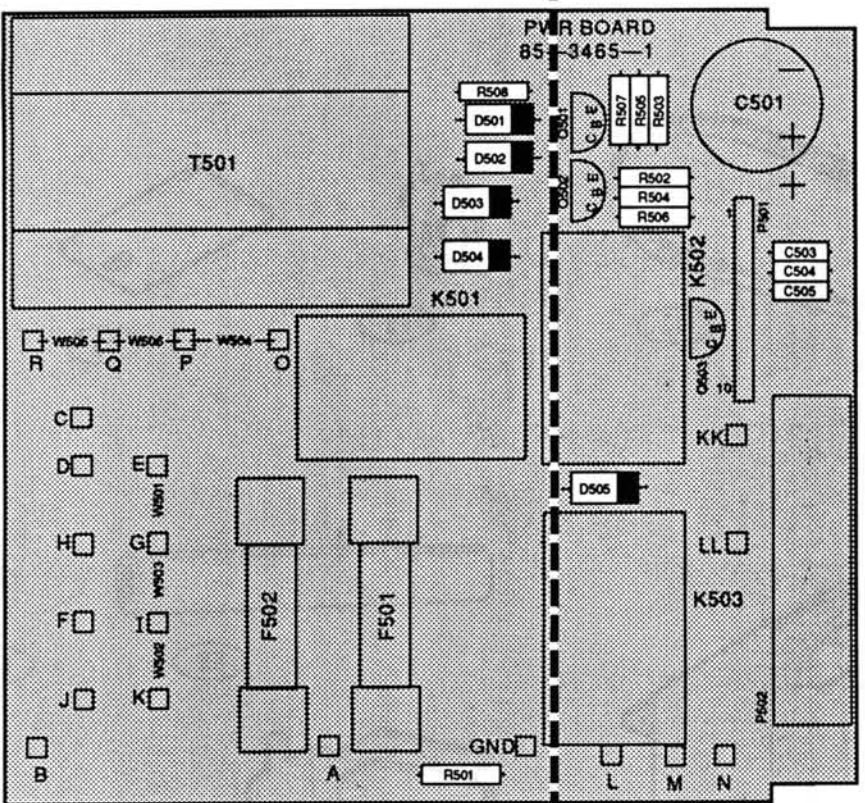
B

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.

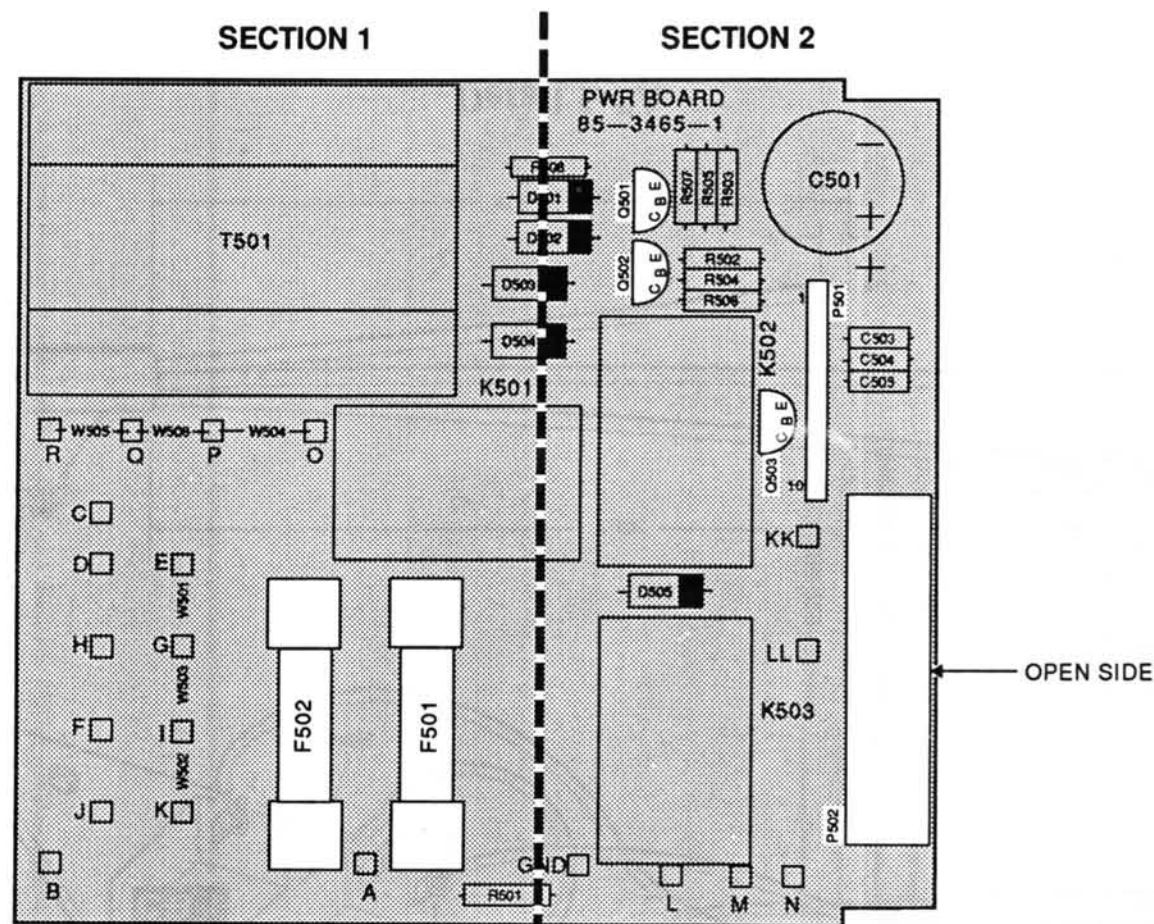
Detail 1-1A

SECTION 1

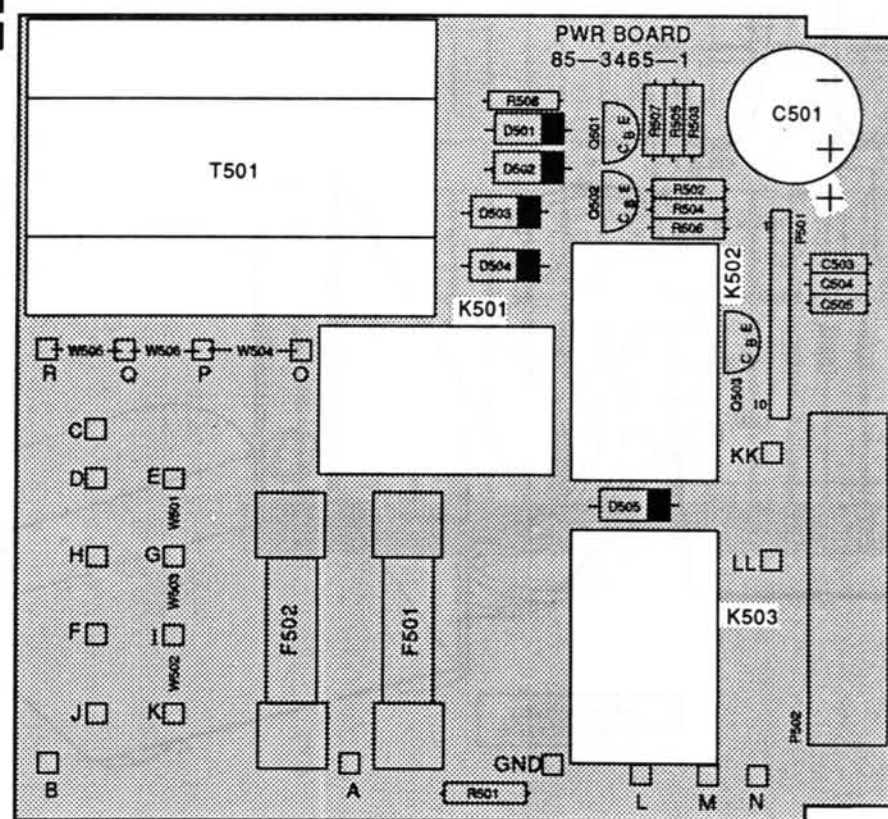
SECTION 2



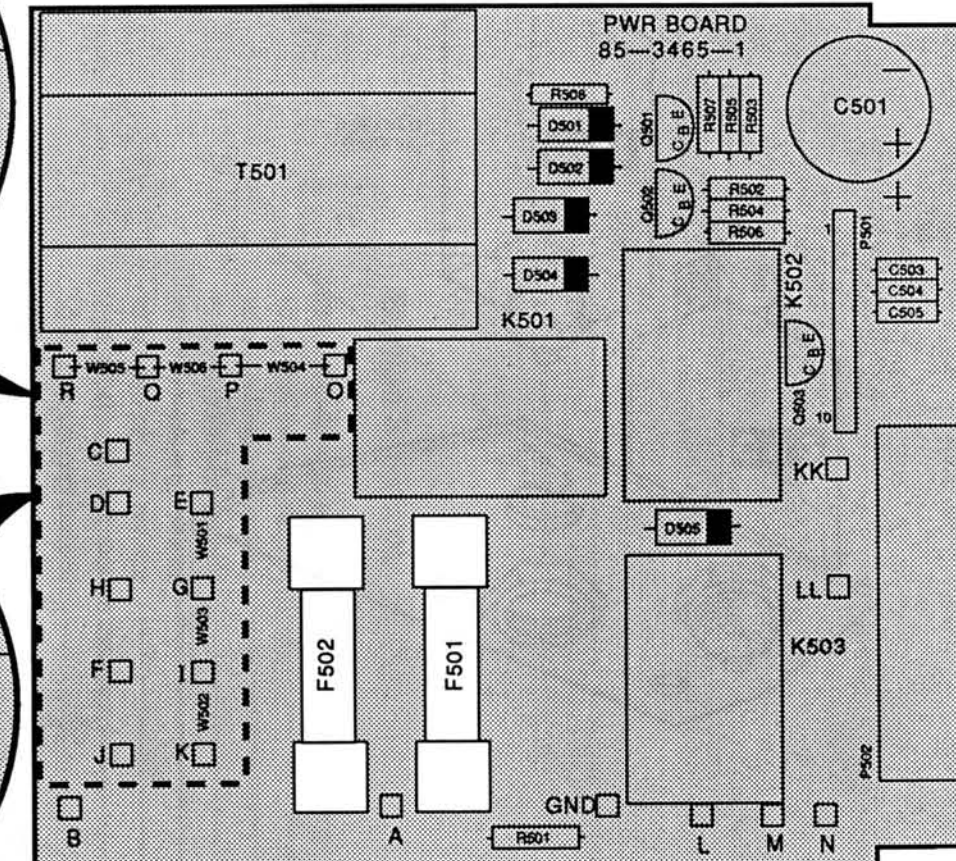
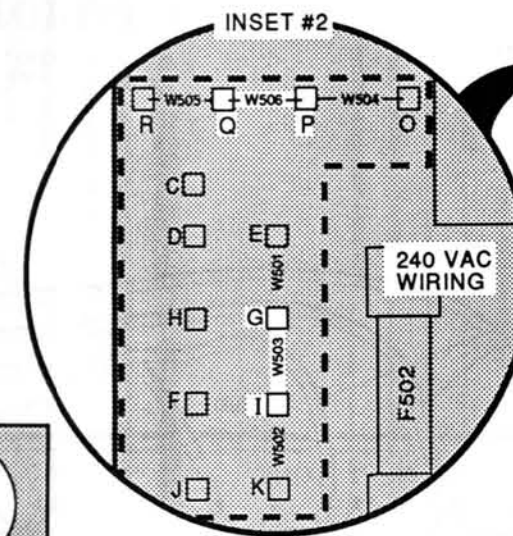
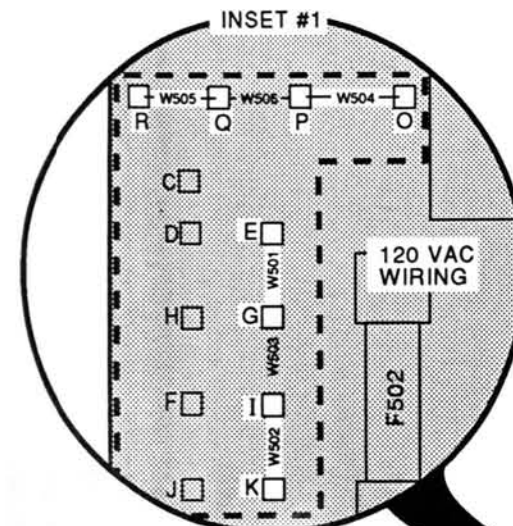
PICTORIAL 1-1



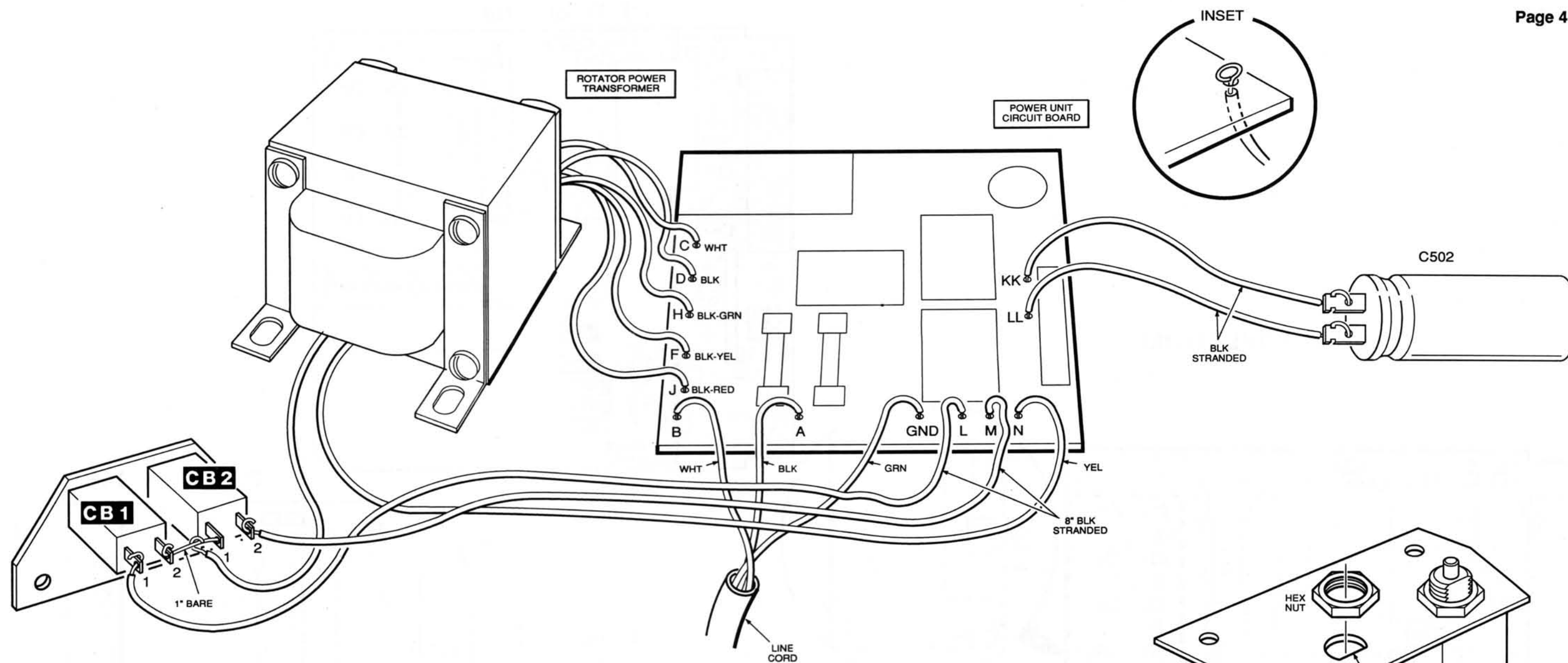
PICTORIAL 1-2



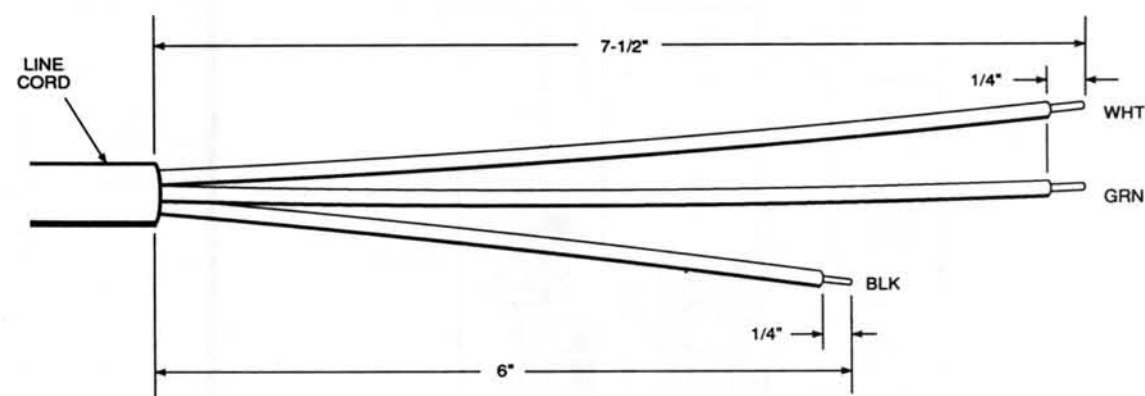
PICTORIAL 1-3



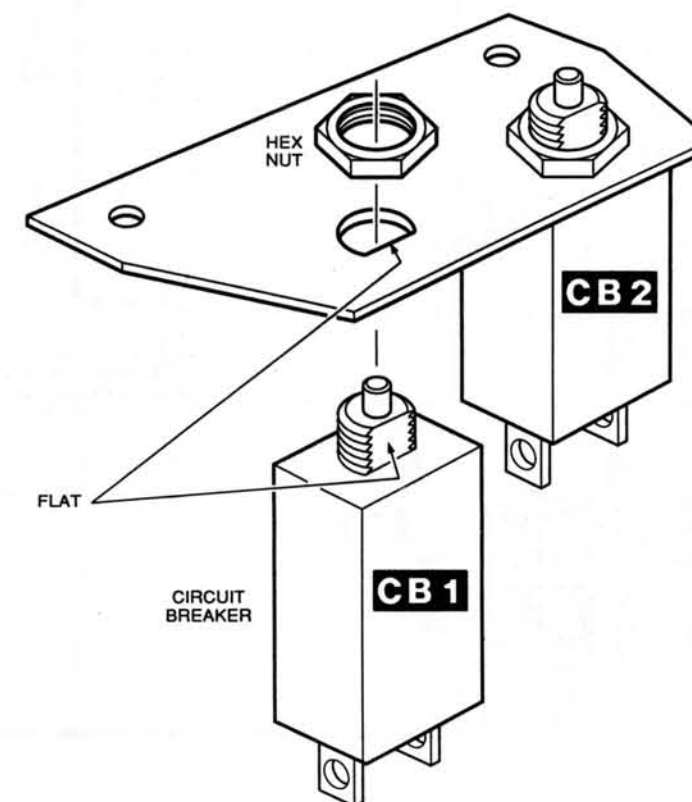
PICTORIAL 1-4



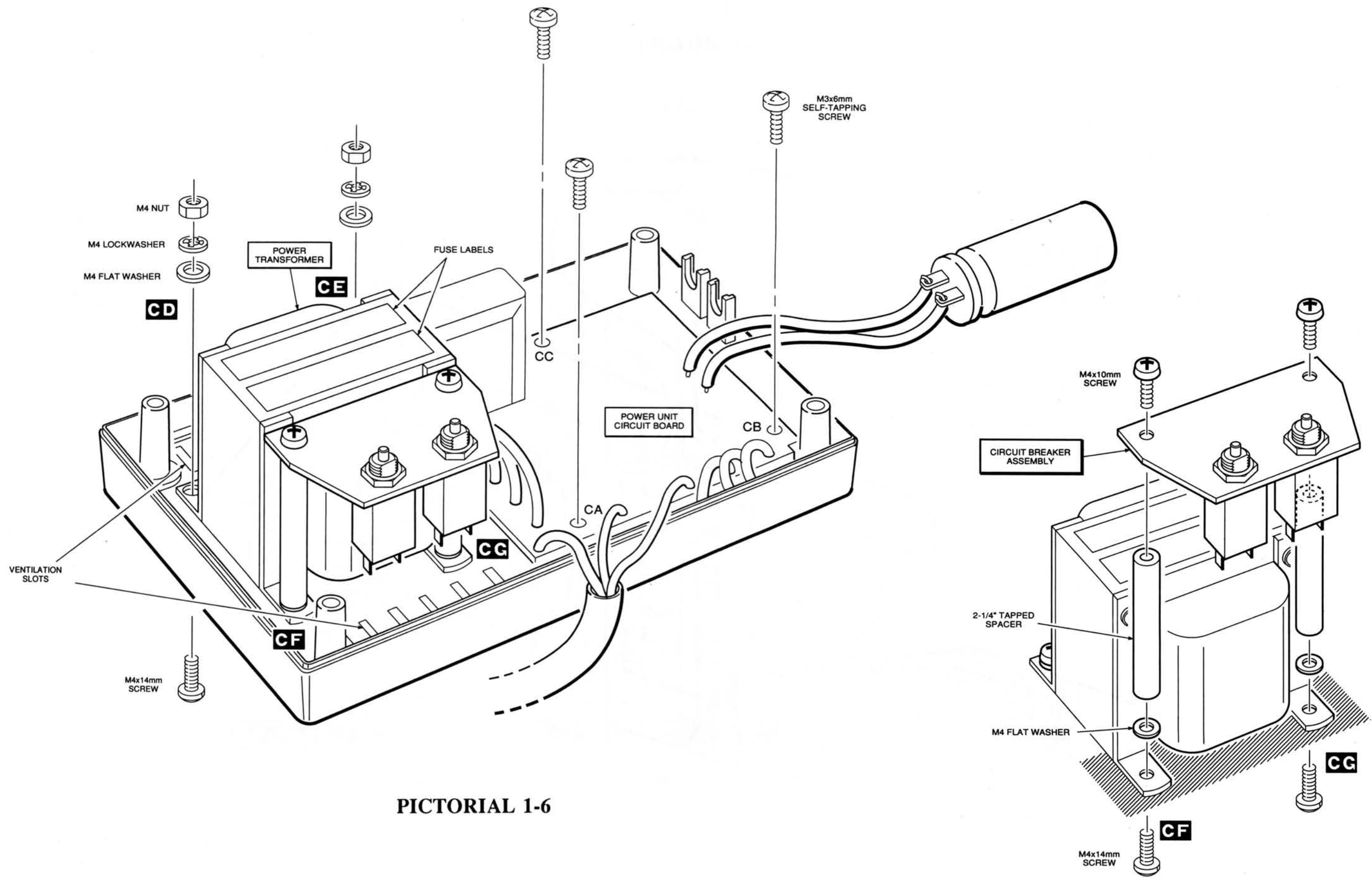
PICTORIAL 1-5



Detail 1-5A

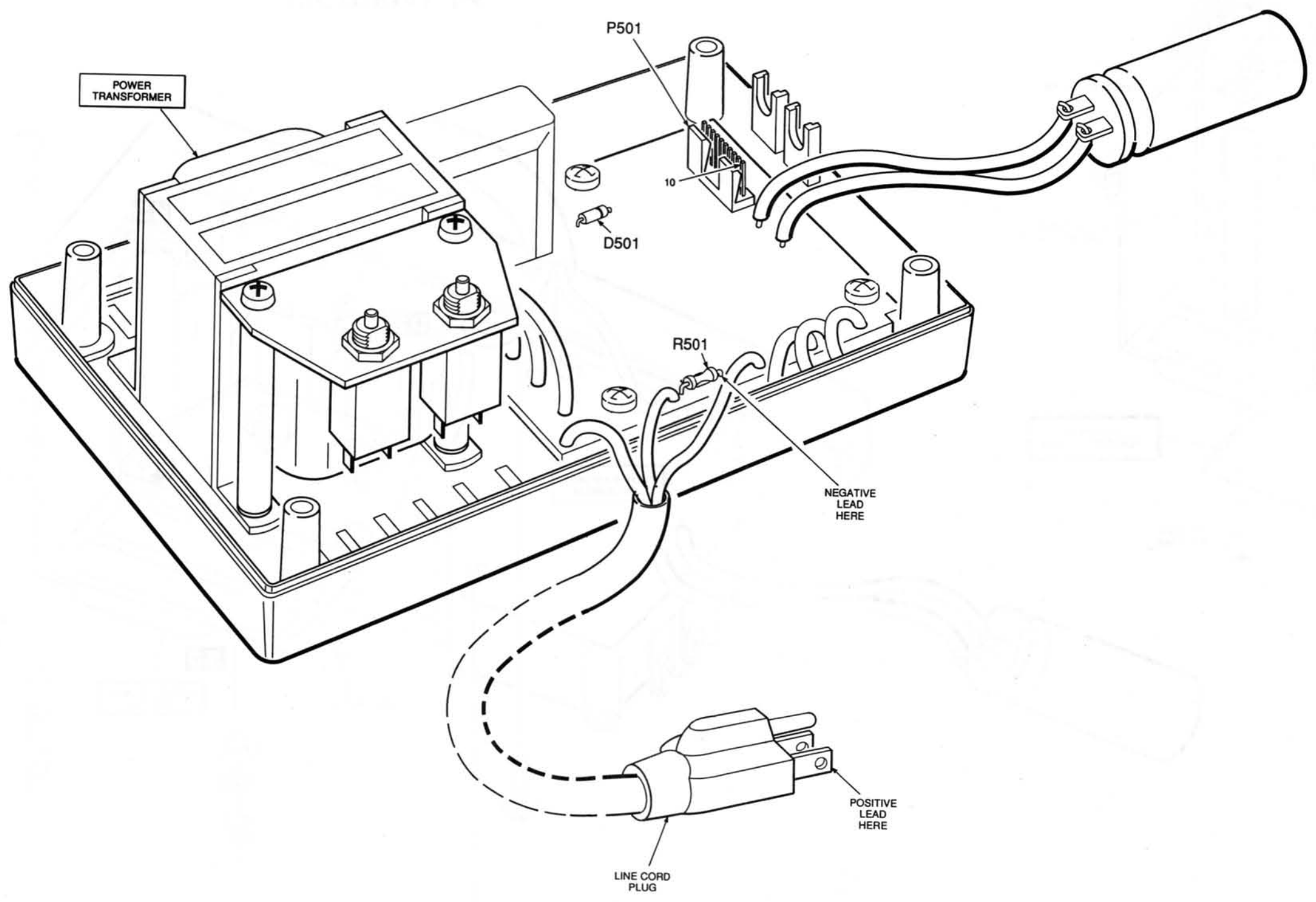


Detail 1-5B

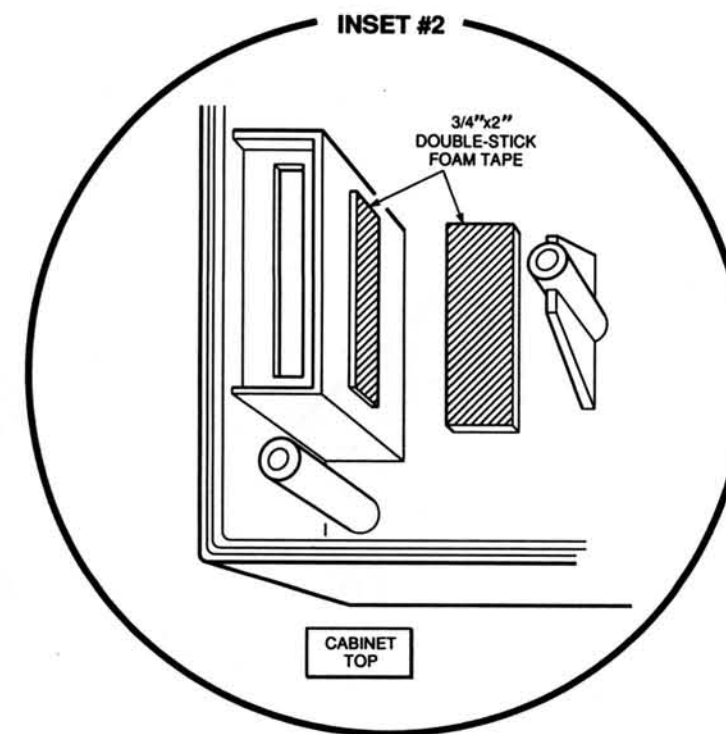
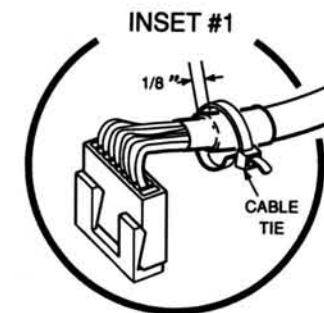
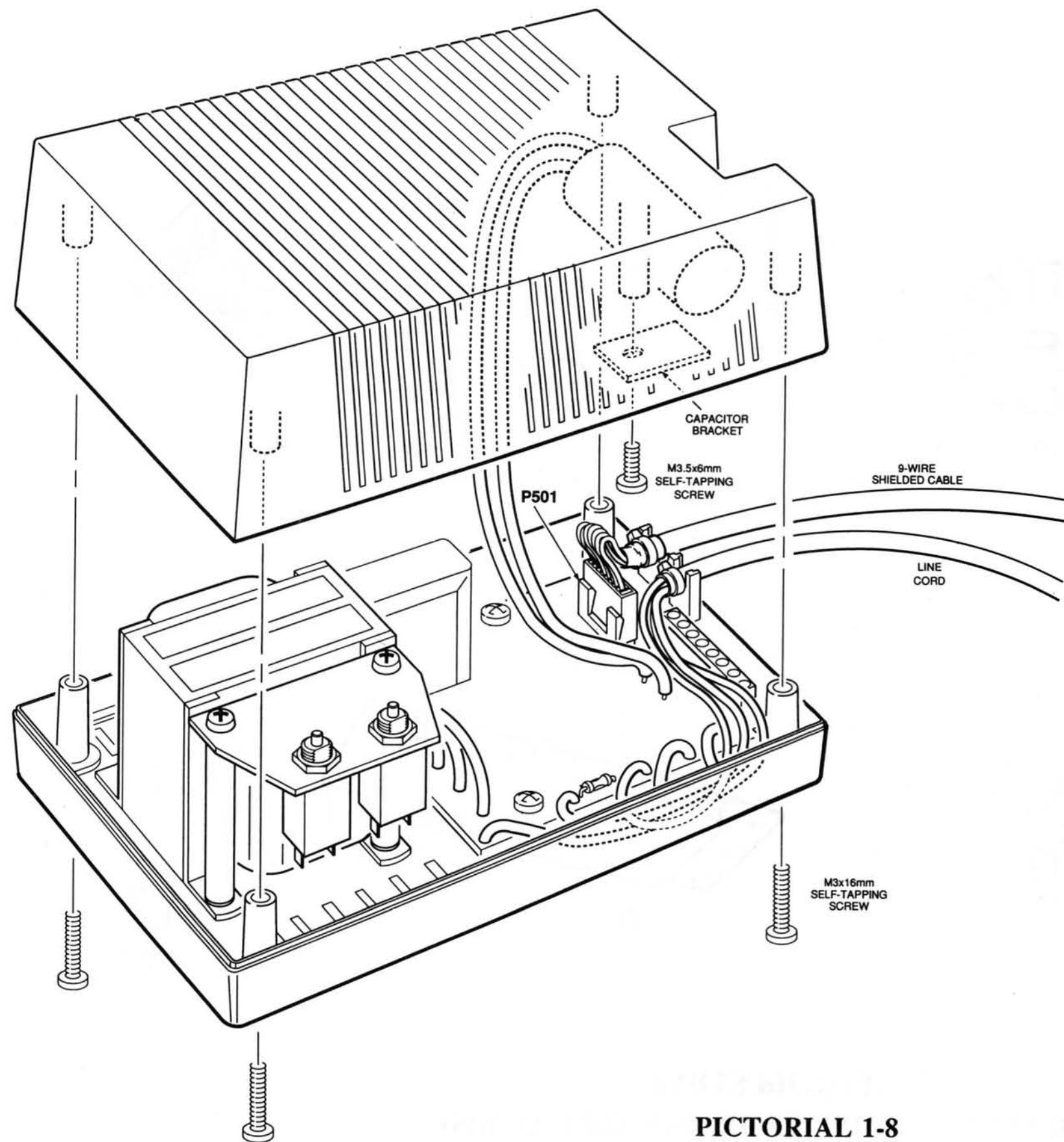


PICTORIAL 1-6

Detail 1-6A



PICTORIAL 1-7



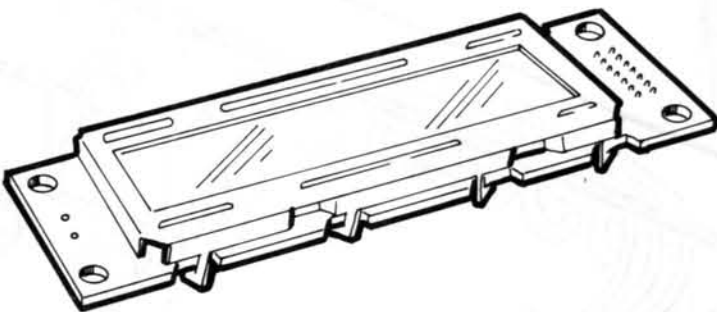
PICTORIAL 1-8

DISPLAY, LED, AND KEYBOARD CIRCUIT BOARD
PARTS PICTORIAL

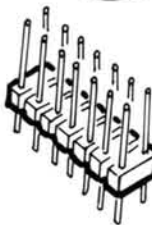
A1



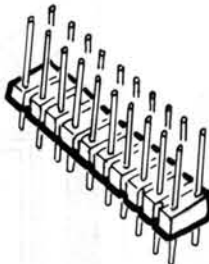
A2



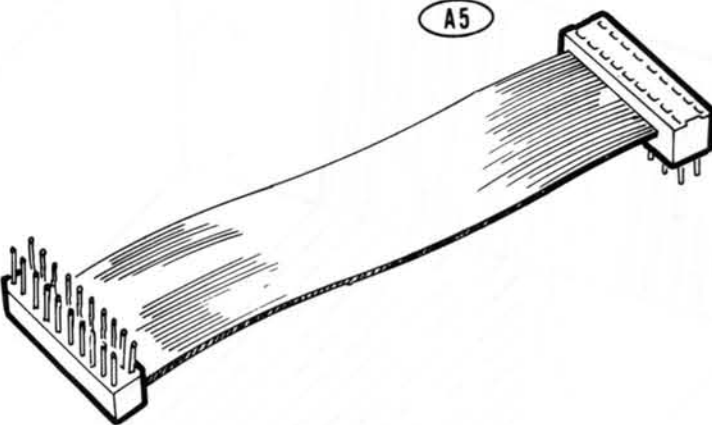
A3



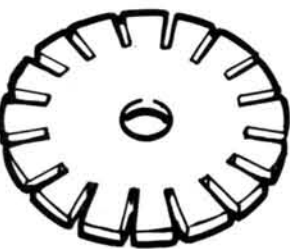
A4

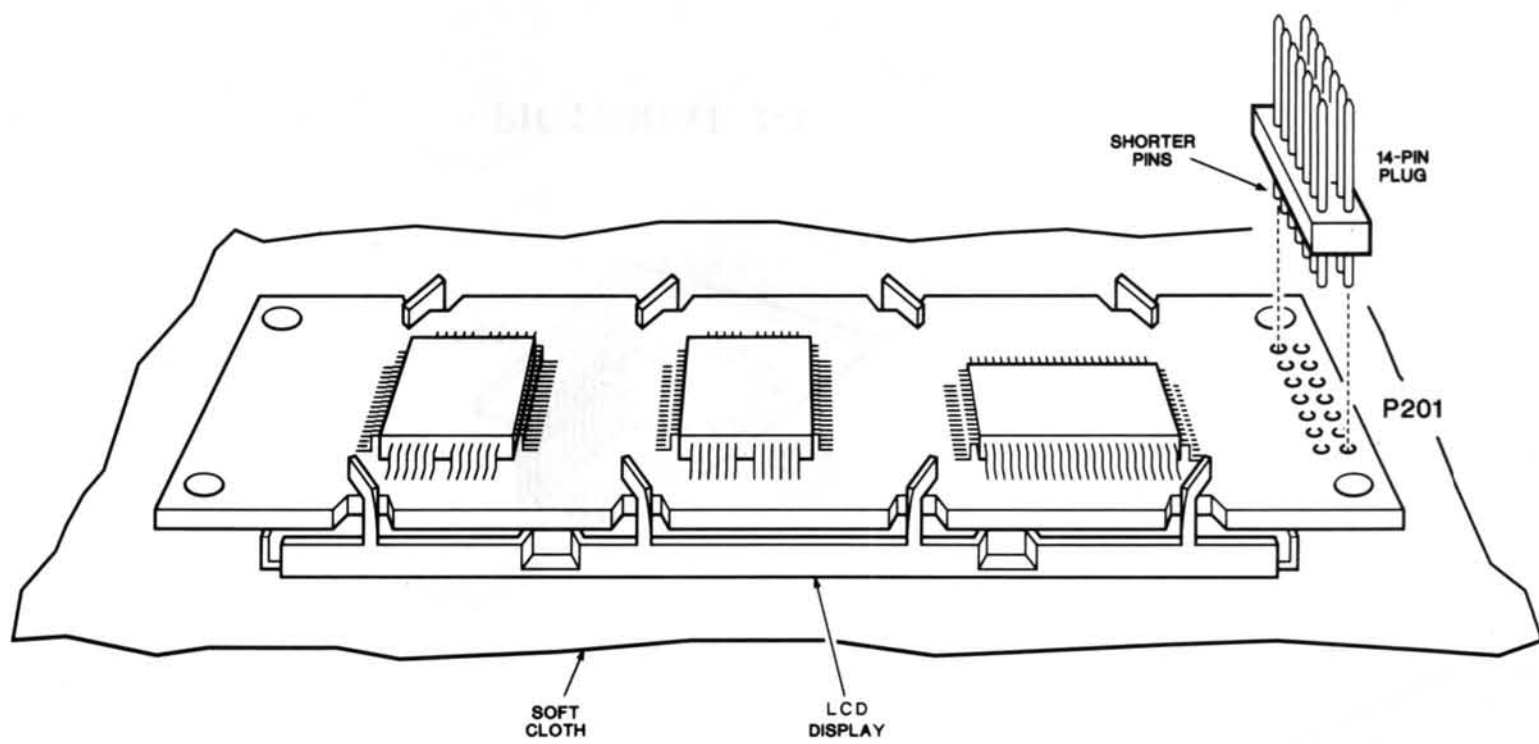


A5

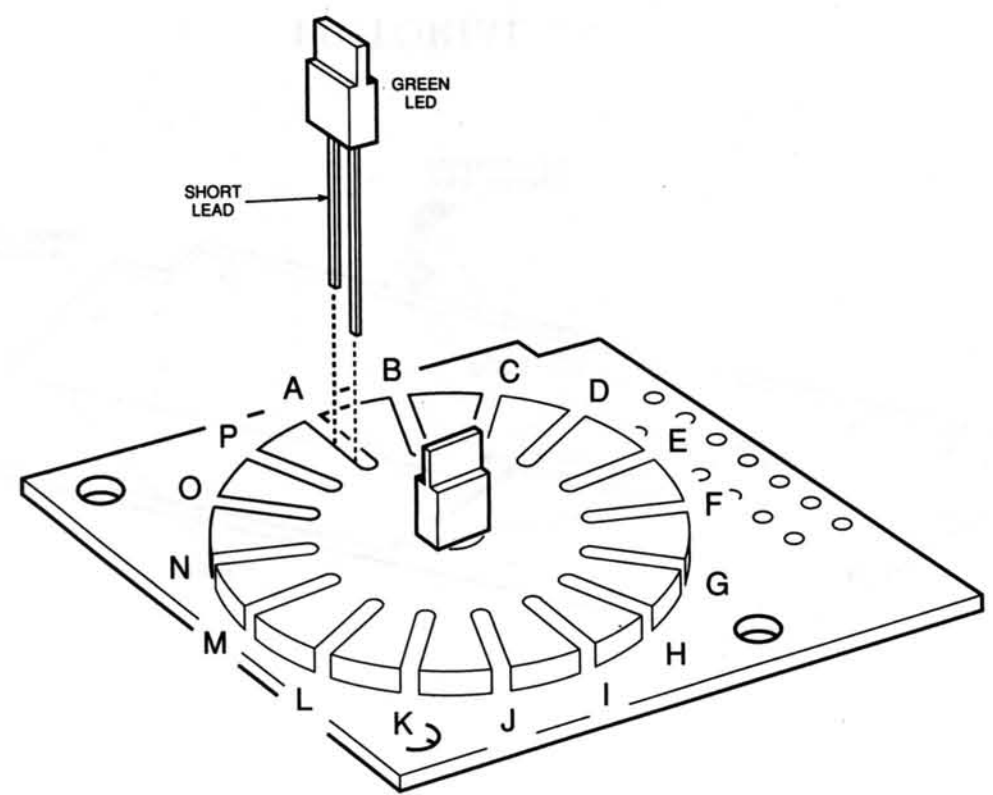


A6

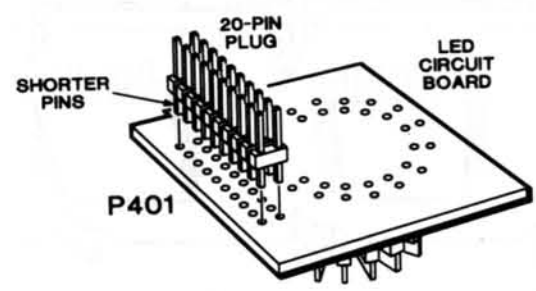




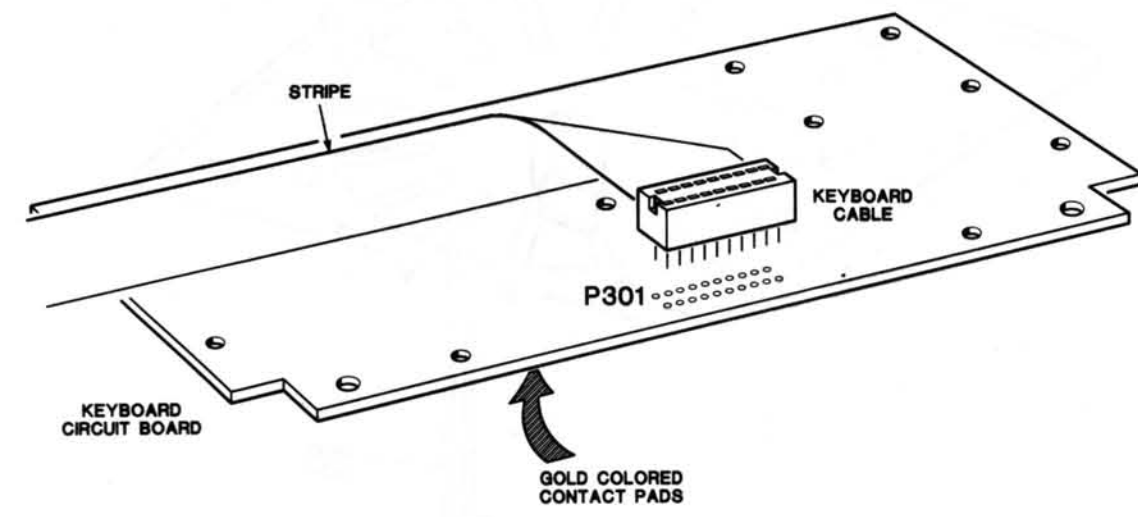
PICTORIAL 2-1



PICTORIAL 2-2

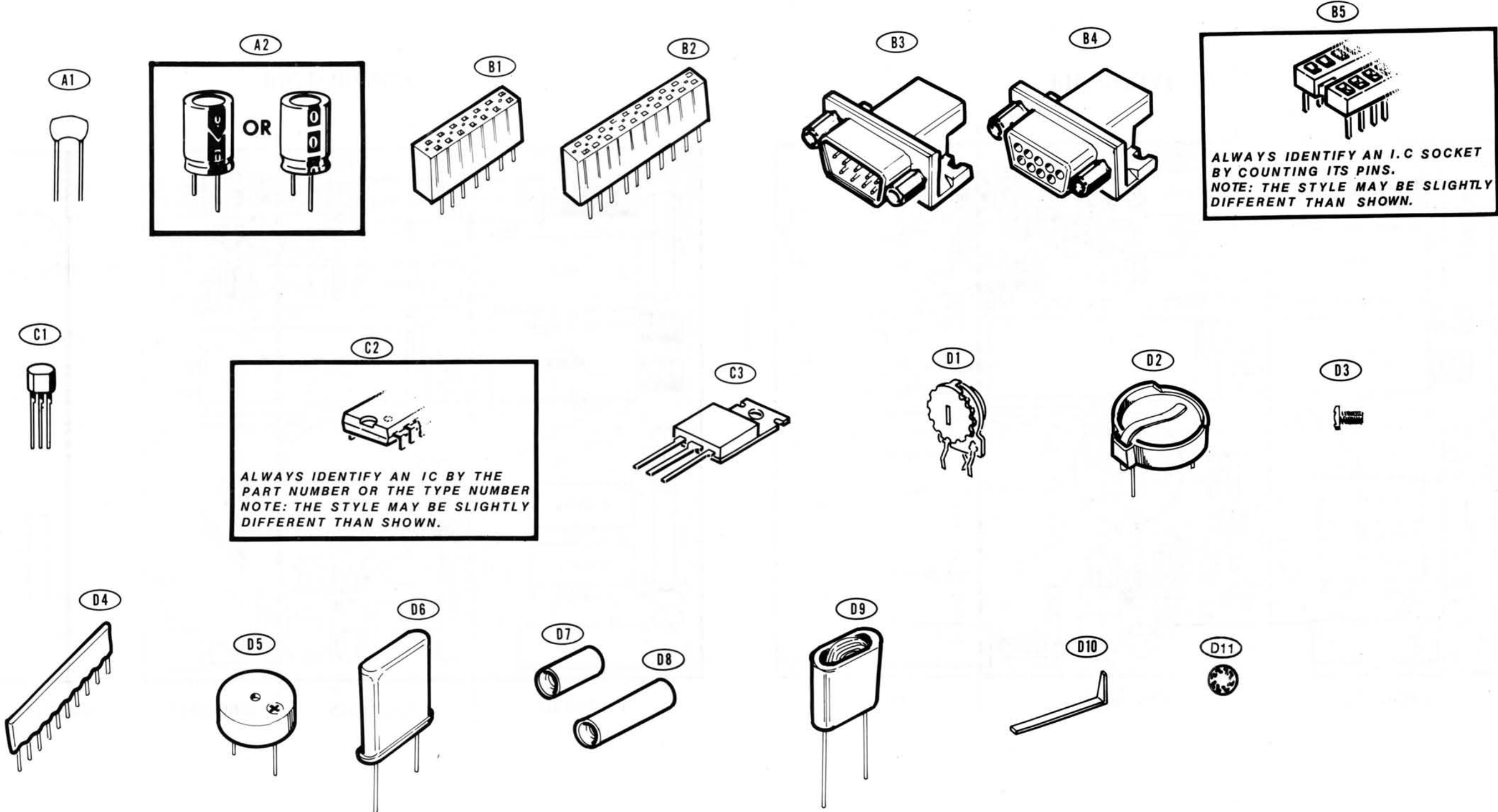


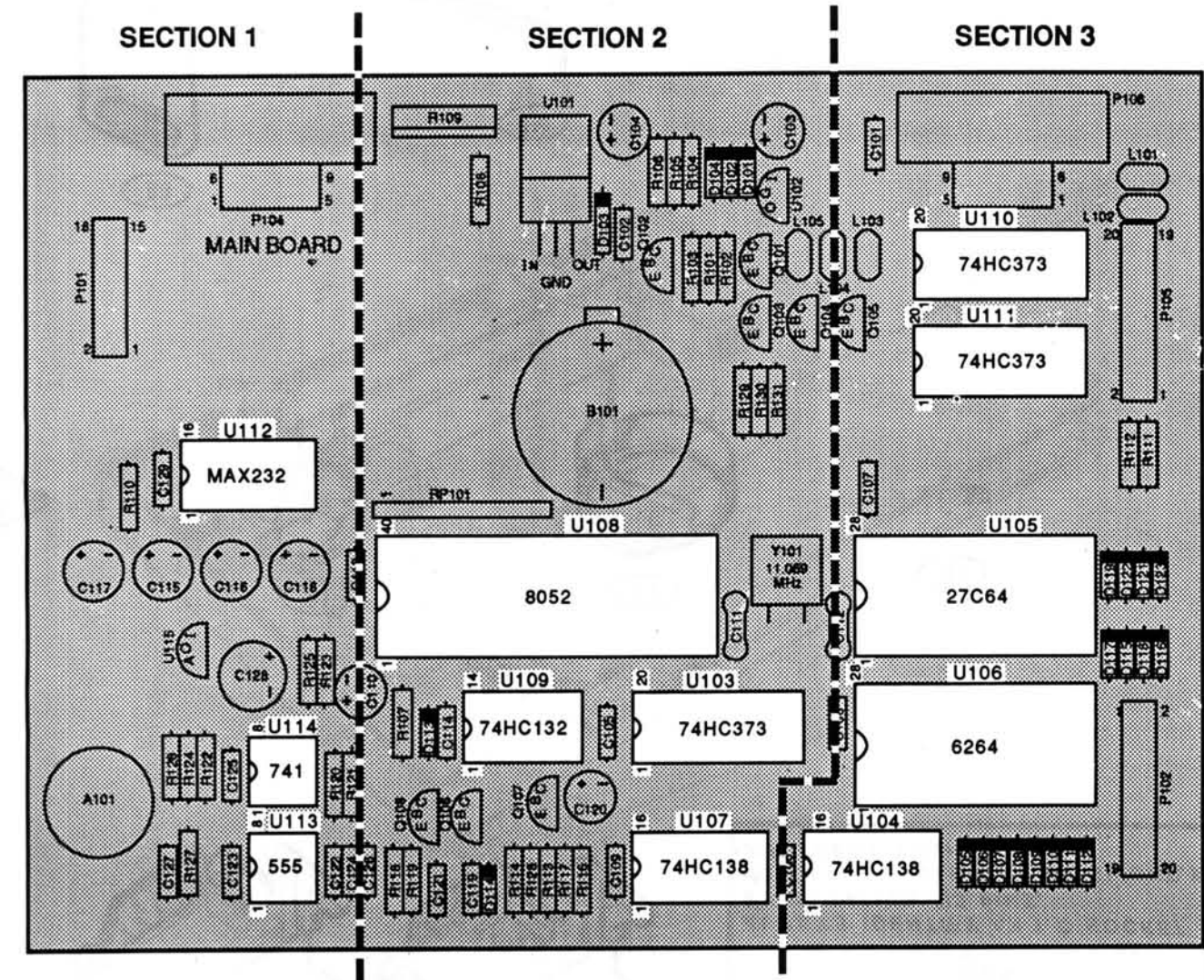
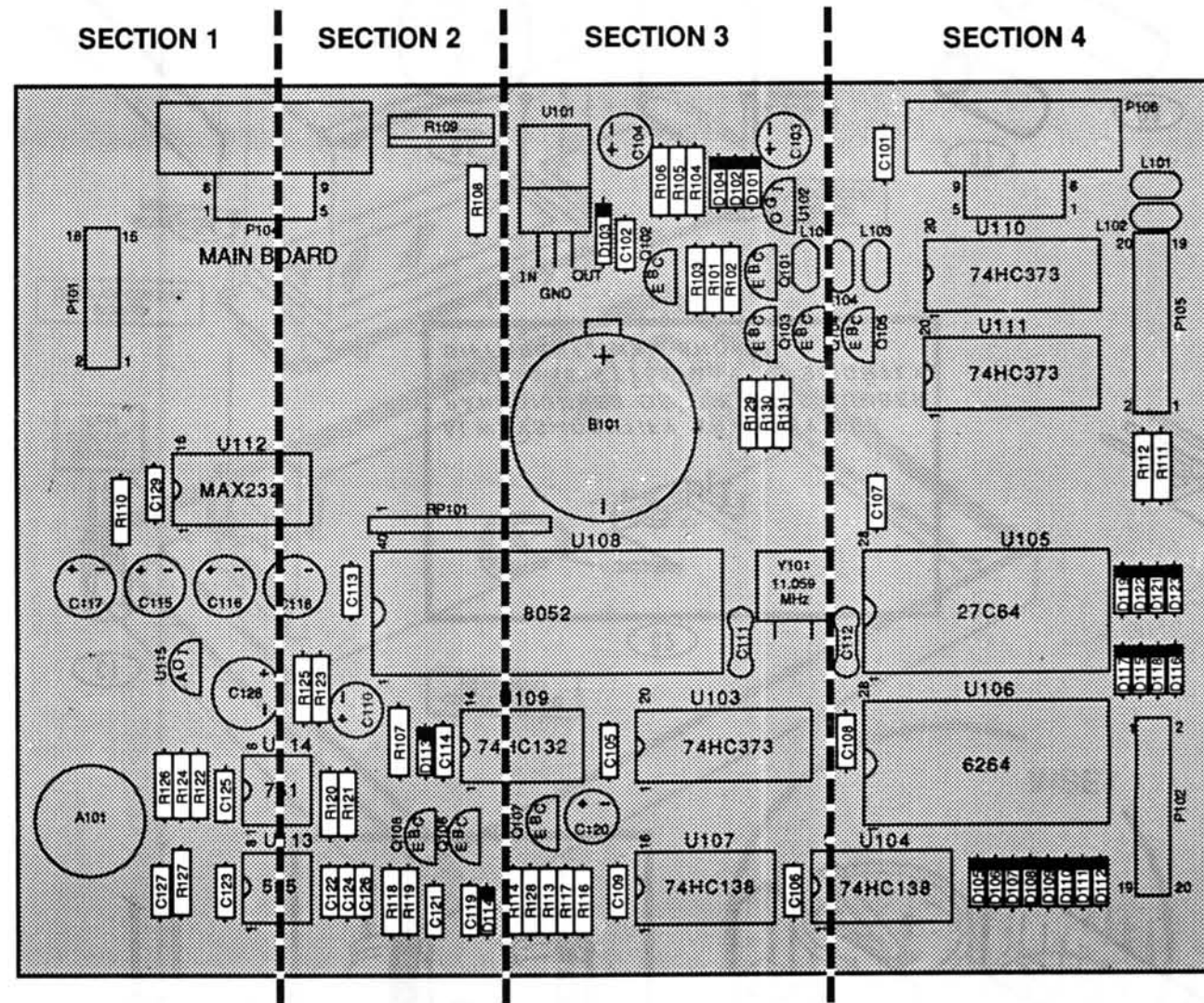
PICTORIAL 2-3

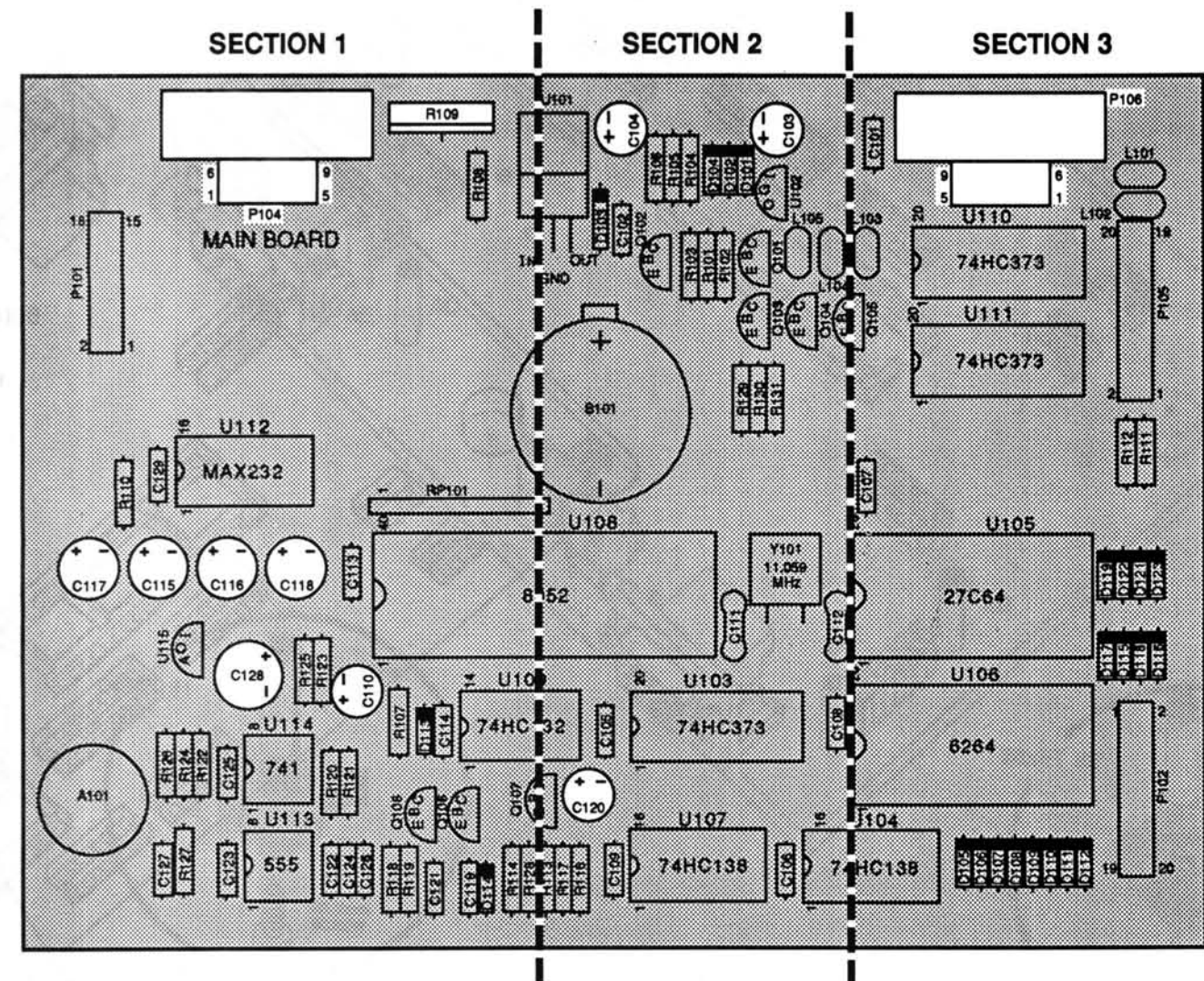
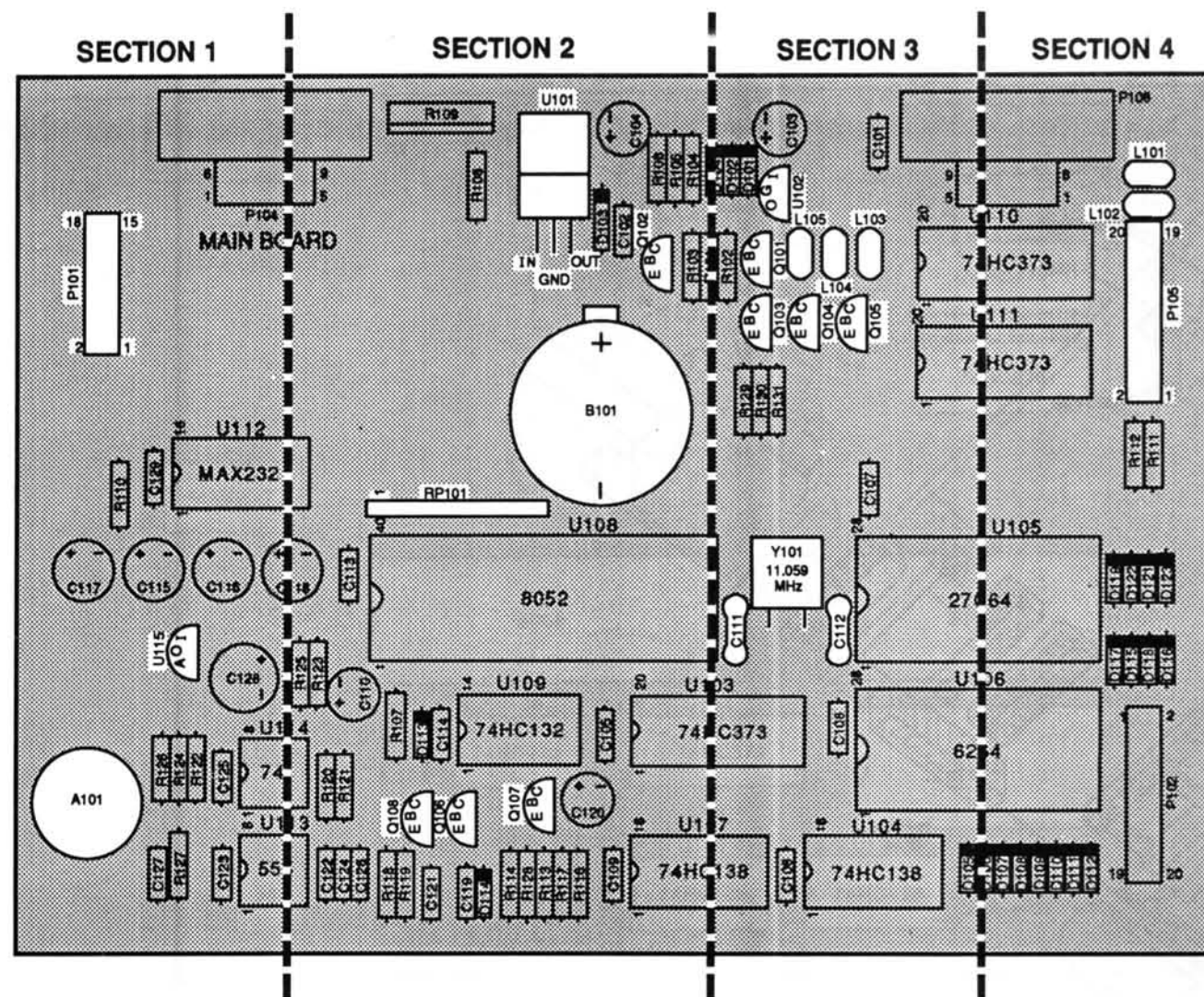


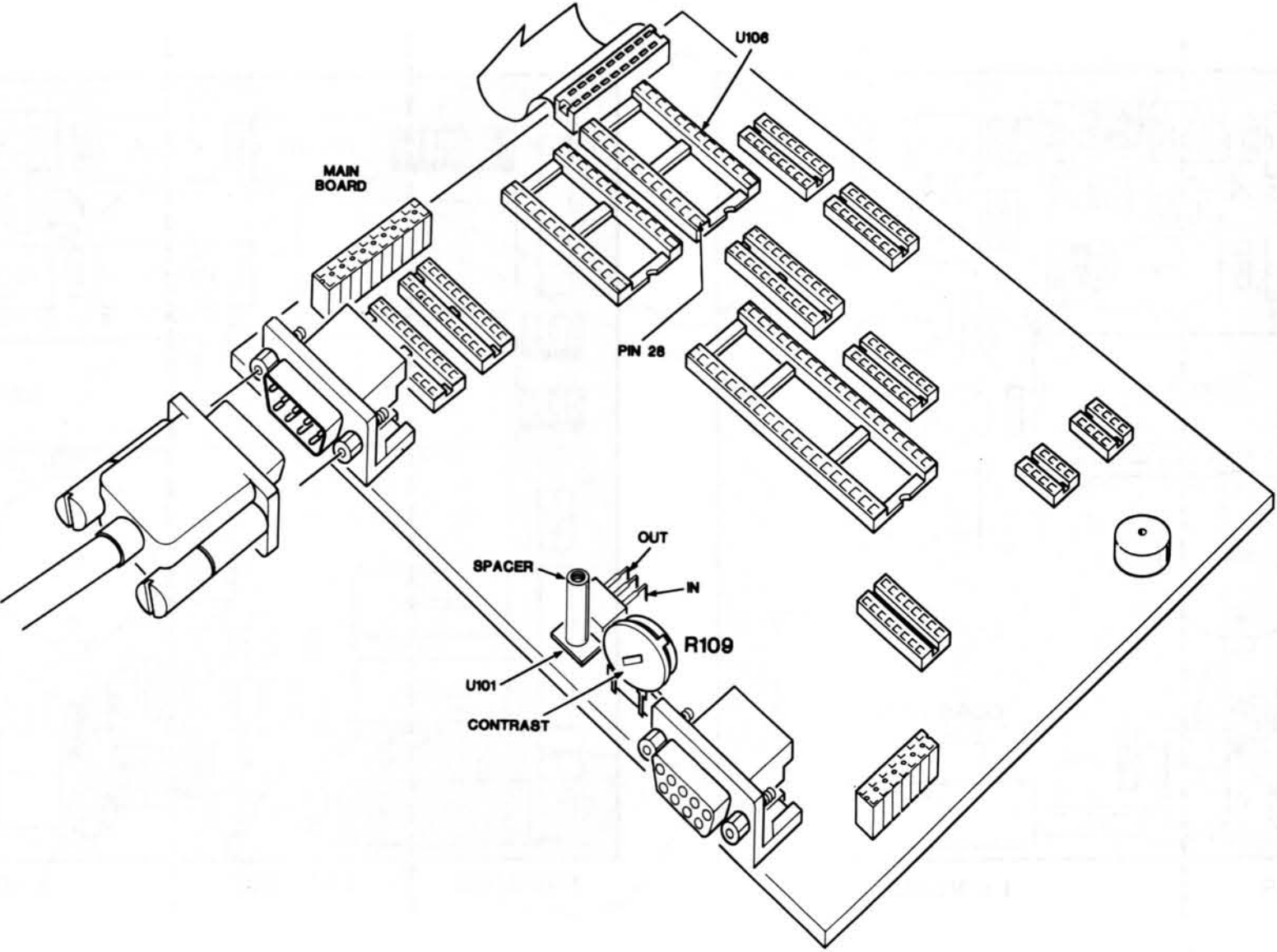
PICTORIAL 2-4

MAIN CIRCUIT BOARD PARTS PICTORIAL

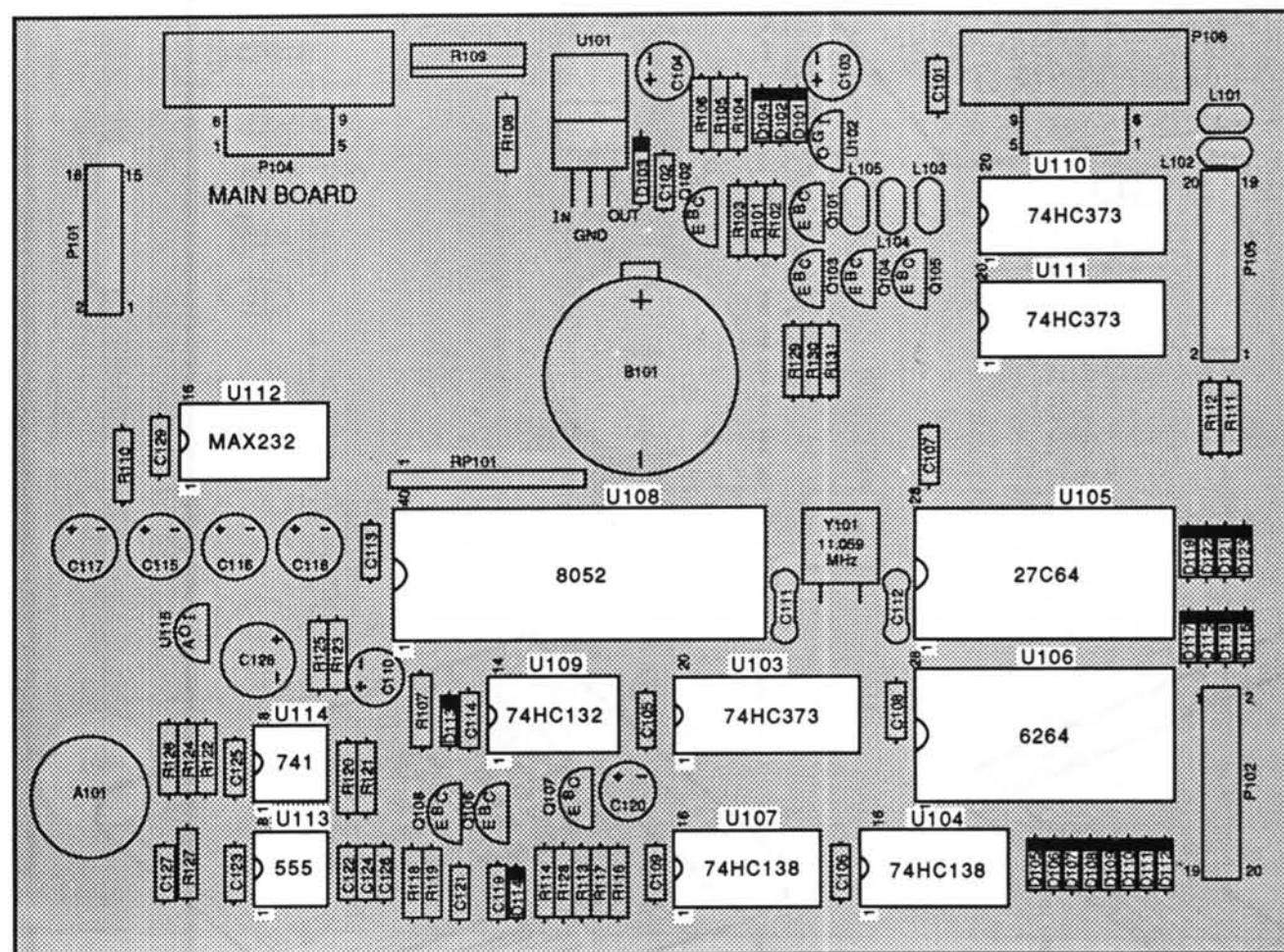




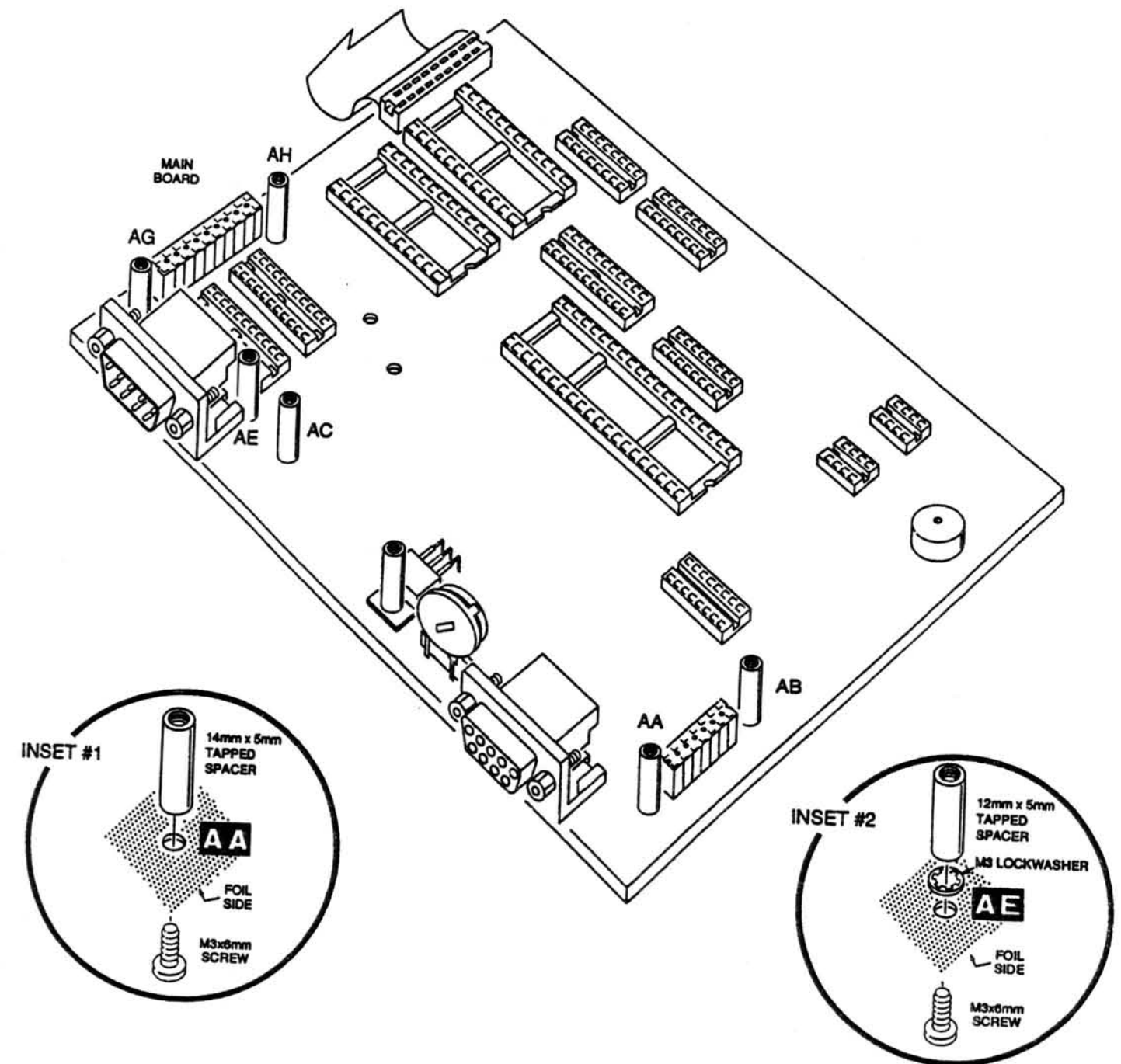




PICTORIAL 3-5

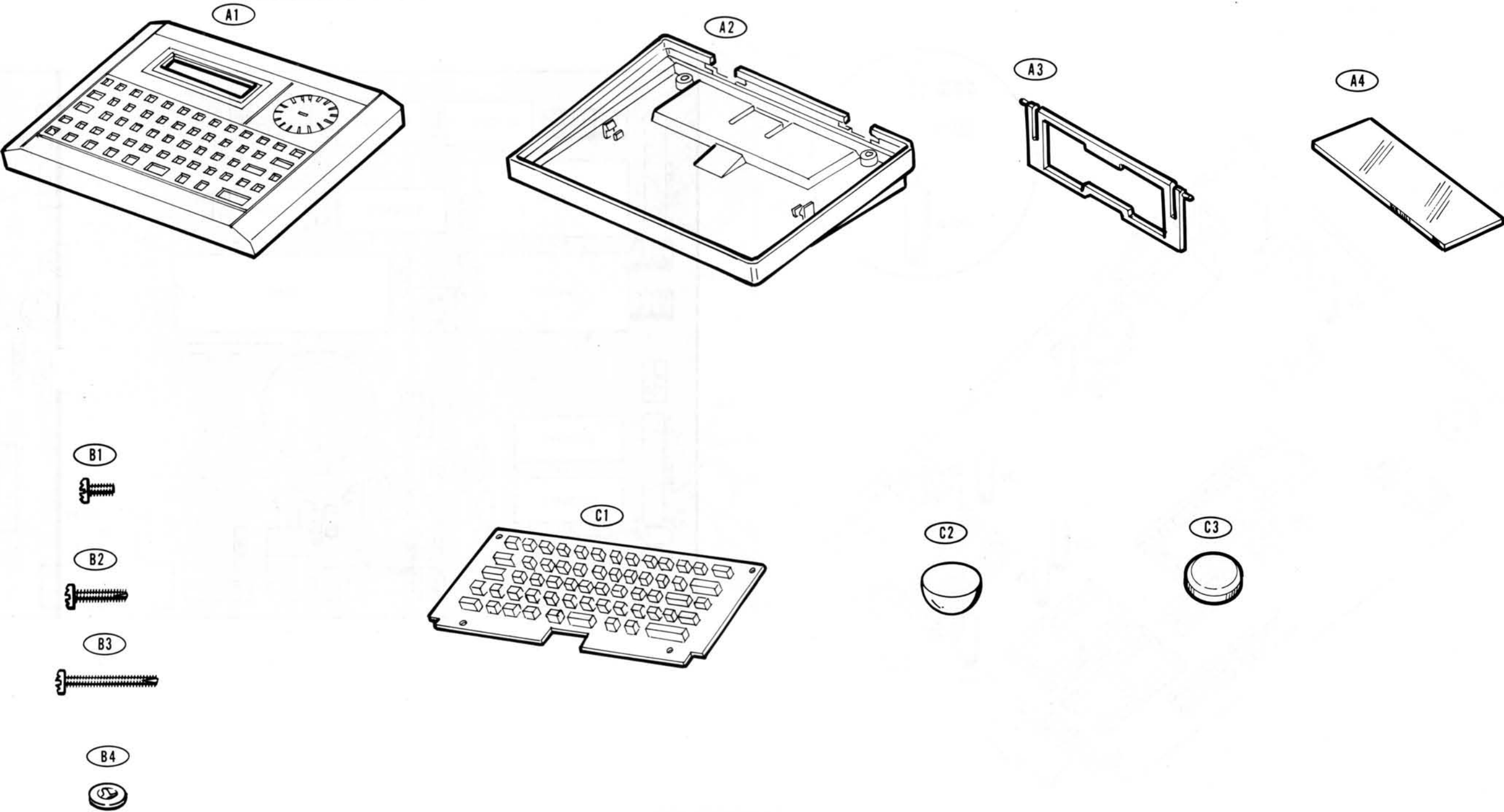


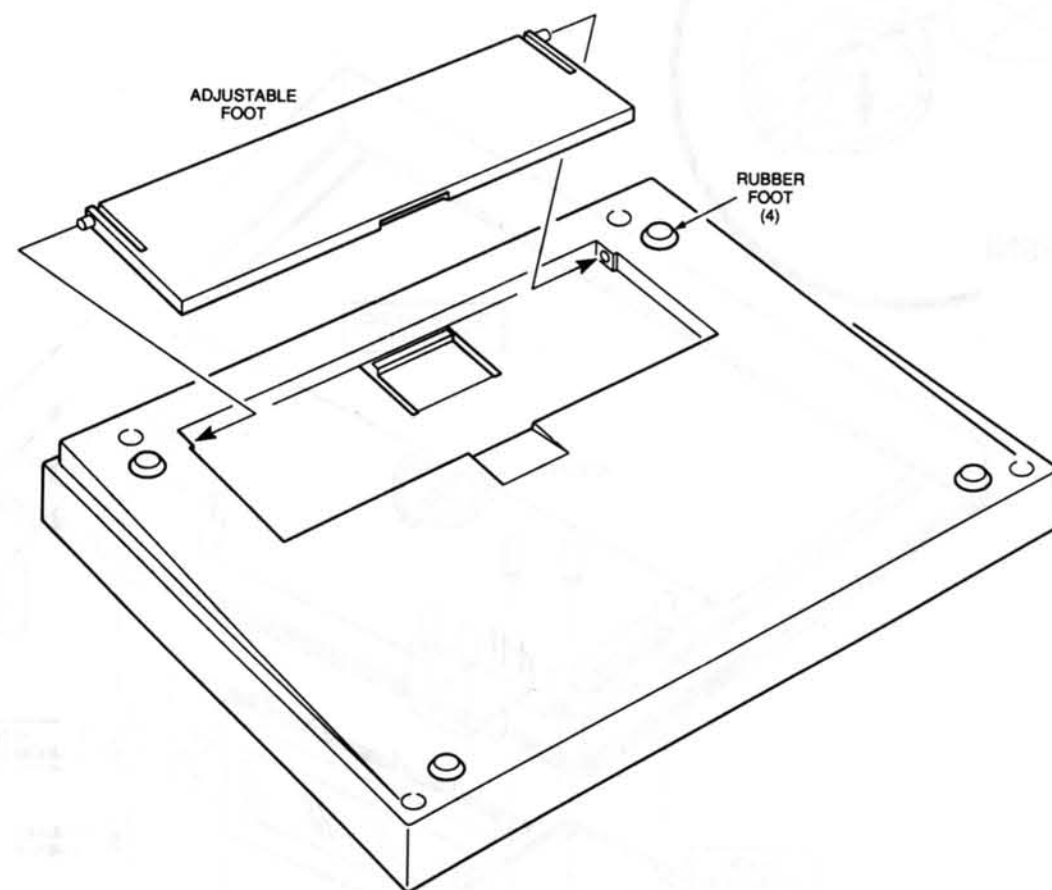
PICTORIAL 3-6



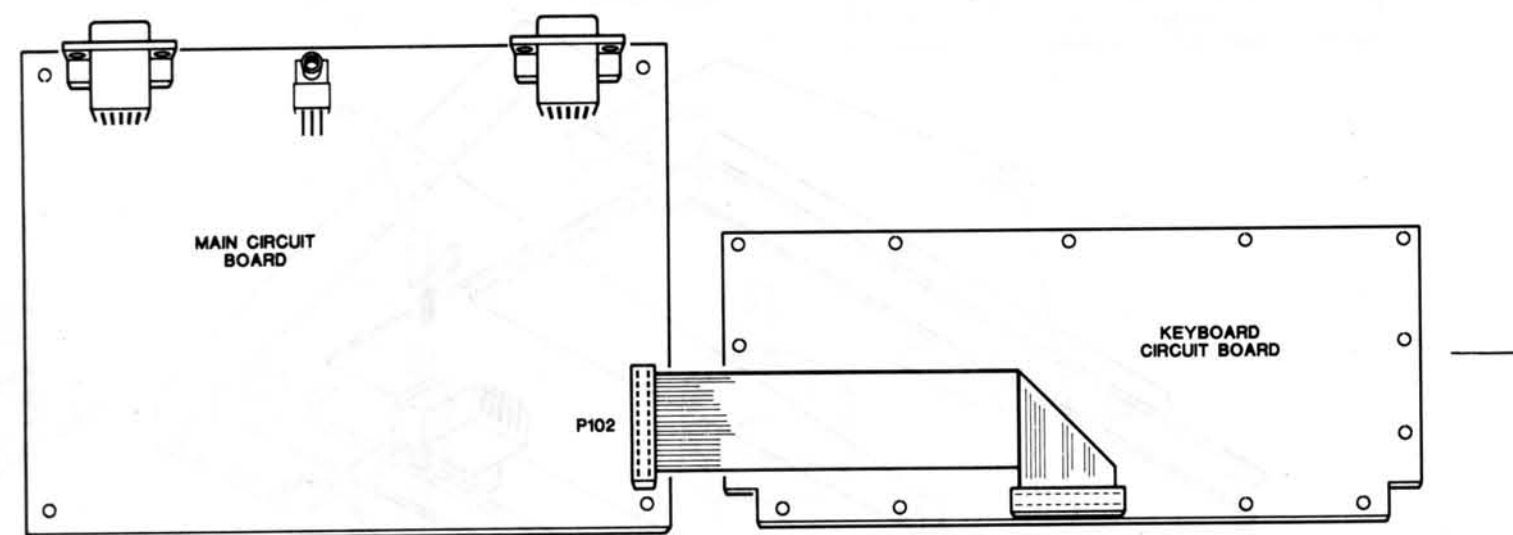
PICTORIAL 3-7

FINAL ASSEMBLY PARTS PICTORIAL

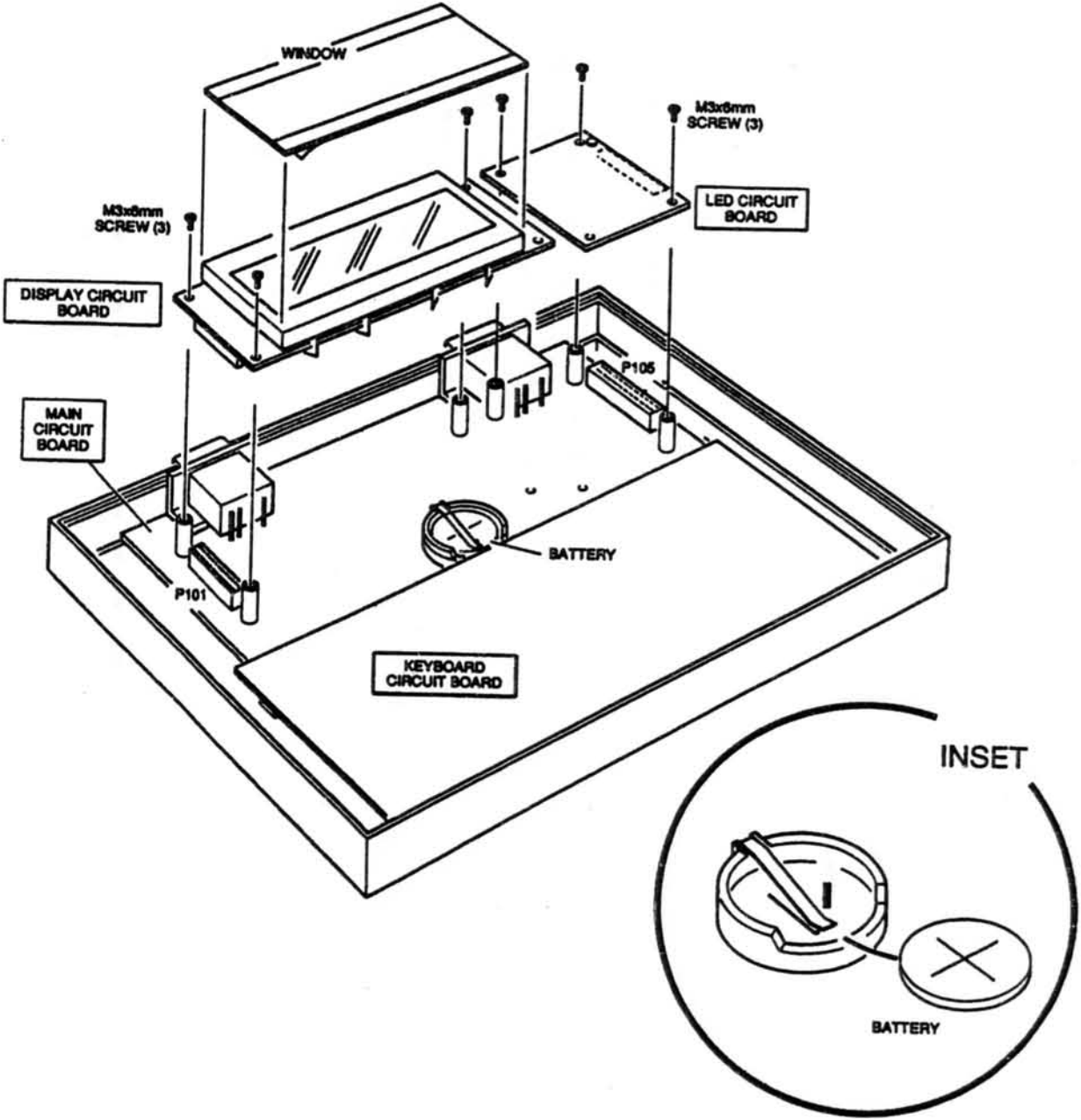




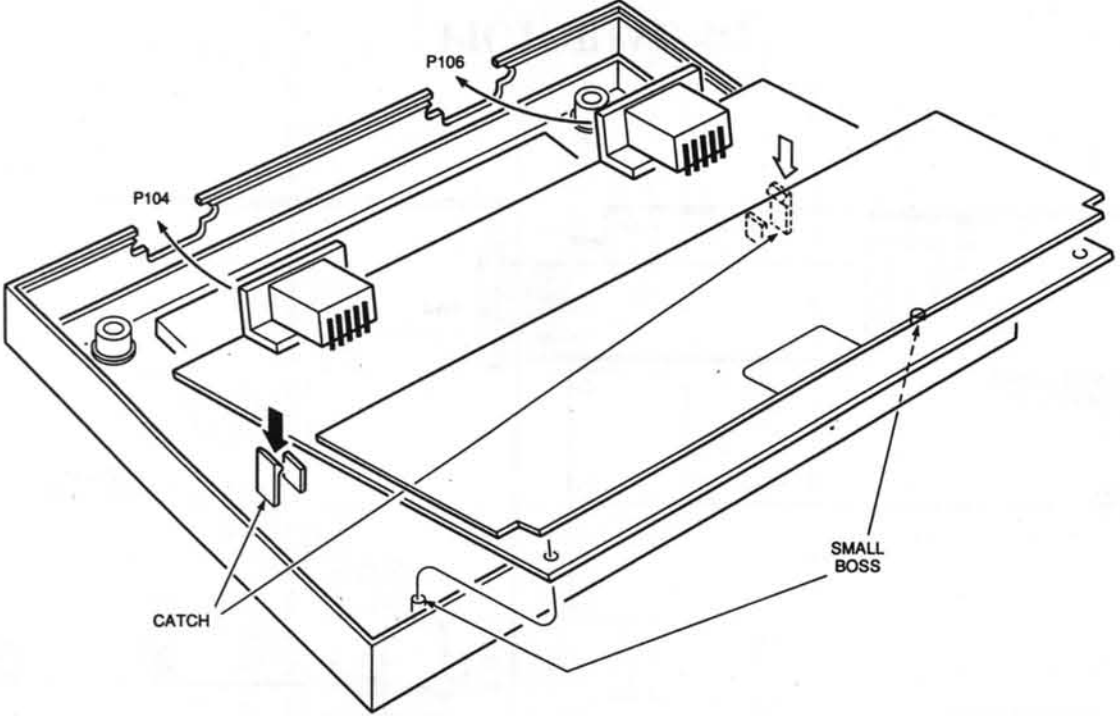
PICTORIAL 4-1



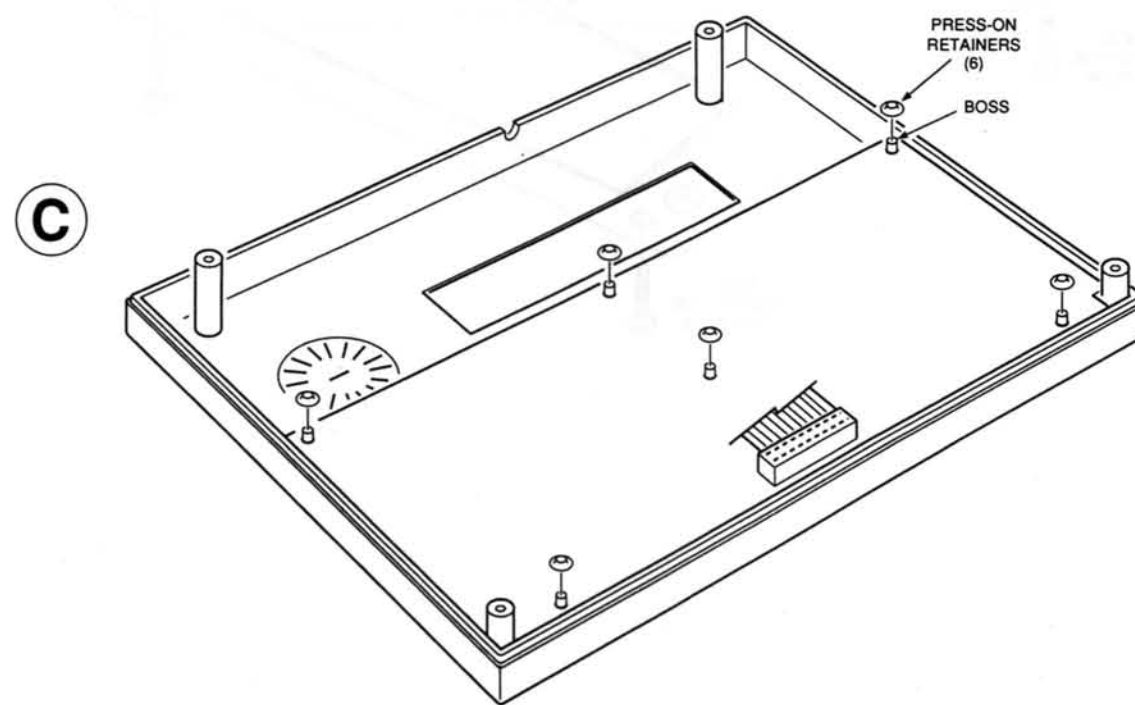
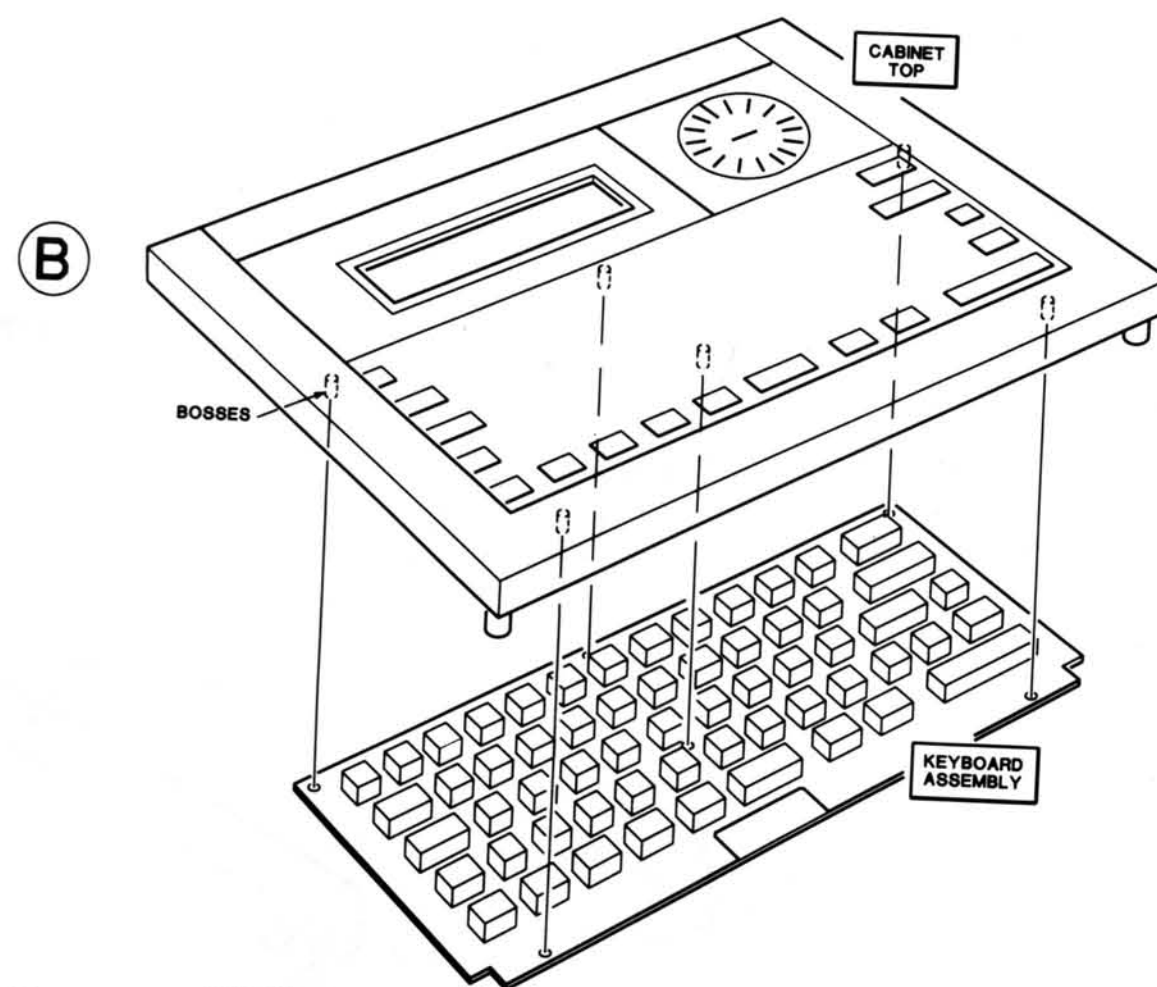
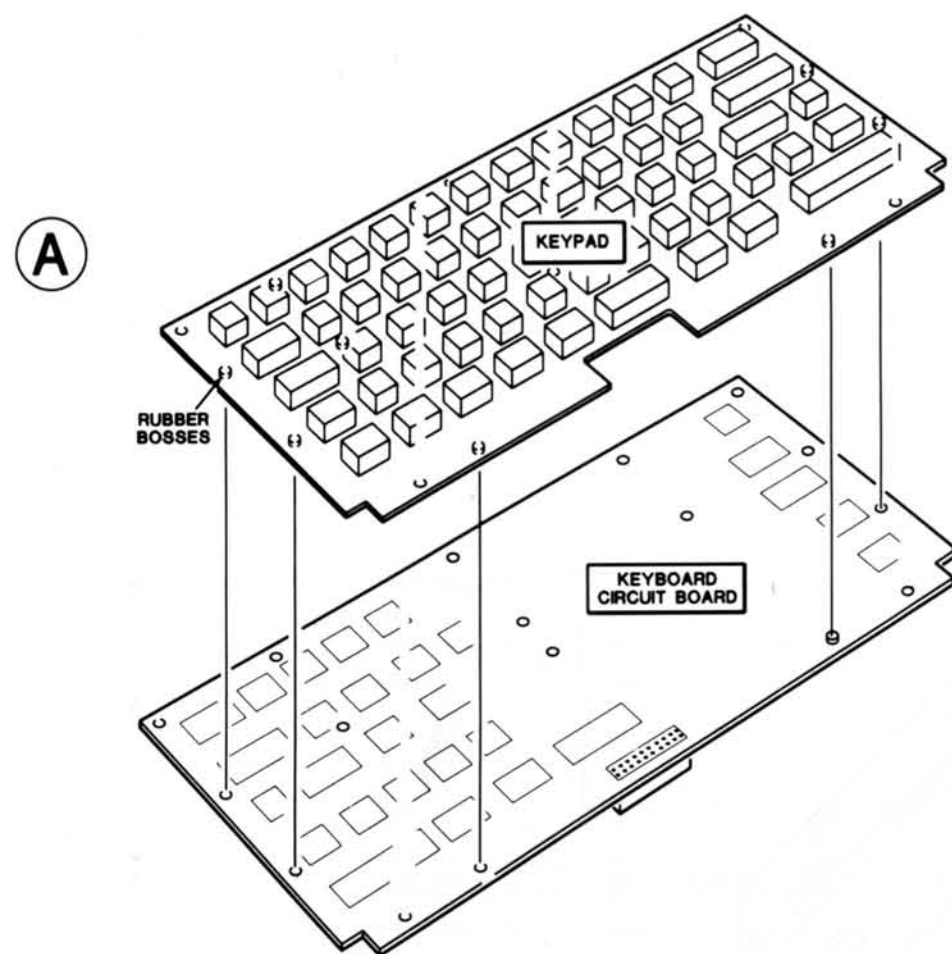
PICTORIAL 4-2



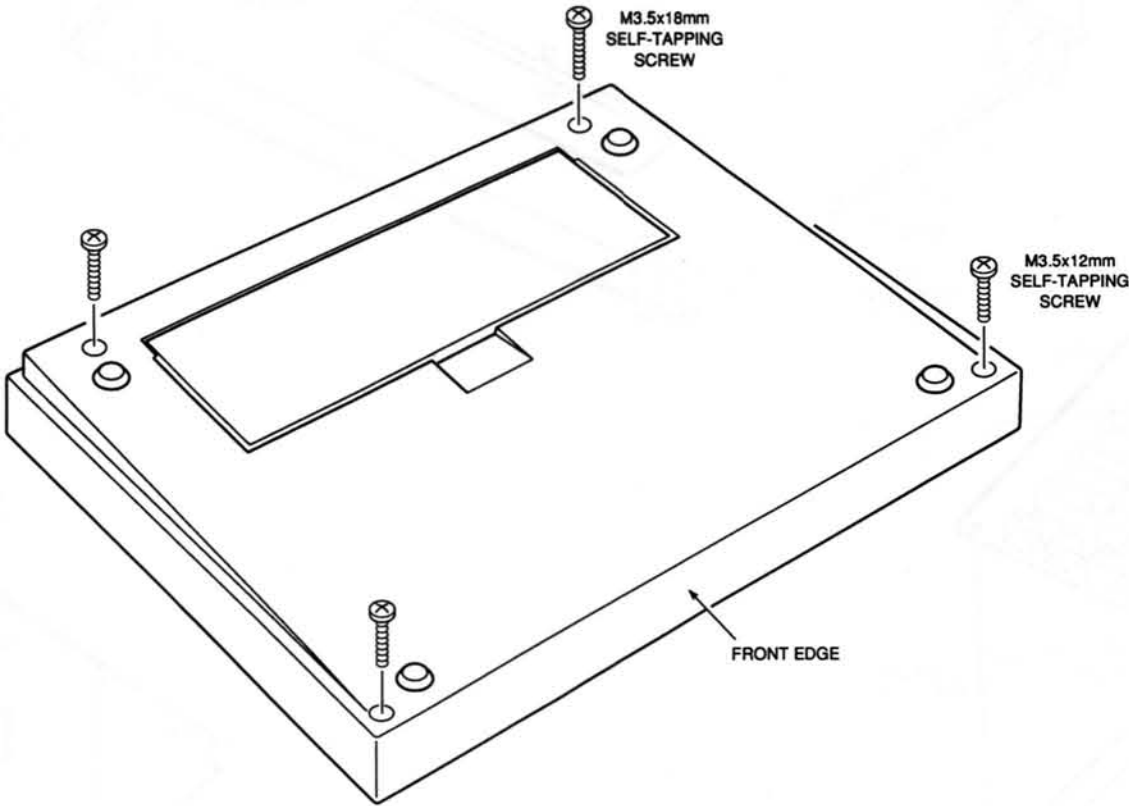
PICTORIAL 4-3



Detail 4-3A



PICTORIAL 4-4



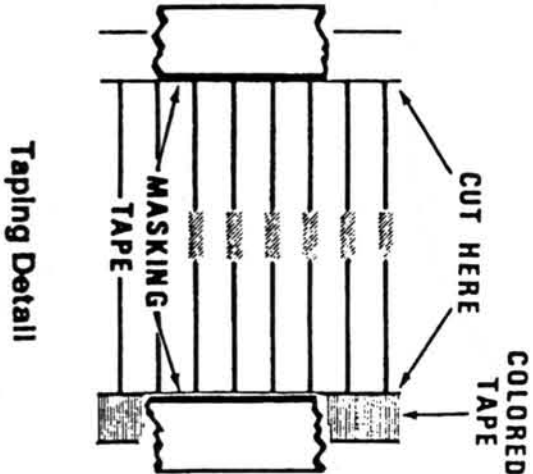
PICTORIAL 4-5

TAPED COMPONENTS CHART

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

Use masking tape, as shown in the Taping Detail, to secure the component strips over the component drawings. Make sure that each component matches the color bands or part number next to its illustration. Cut the tapes, as necessary, so that you can properly align the components in each section. Do not remove any components from the strip until they are called for in the assembly instructions.

NOTE: Never attempt to pull the components from the tape unless you are instructed to do so in a step; 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 UNIT

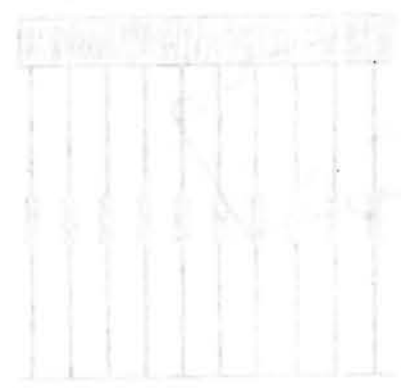
Section 1

10 kΩ (brn-blk-org) resistor	_____
1N4002 (#57-65) diode	_____
1N4002 (#57-65) diode	_____
1N4002 (#57-65) diode	_____
1N4002 (#57-65) diode	_____
2.2 MΩ (red-red-grn) resistor	_____

Section 2

10 kΩ (brn-blk-org) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
1000 Ω (brn-blk-red) resistor	_____
1000 Ω (brn-blk-red) resistor	_____
1000 Ω (brn-blk-red) resistor	_____
1000 Ω (brn-blk-red) resistor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
1N4002 (#57-65) diode	_____

PIC16C610 AND KEYBOARD PARTS PIC



1. The PIC16C610 is a 16-bit microcontroller with 1K bytes of EPROM and 128 bytes of RAM. It is designed for use in a wide range of applications, including data acquisition, control systems, and communications.

2. The PIC16C610 is a 40-pin device, which allows it to be connected to a wide range of peripheral devices. The pins are arranged in a standard DIP package, which makes it easy to install and test.

3. The PIC16C610 is a low-power device, which makes it suitable for use in battery-powered applications. It has a typical supply current of 10mA, and it can operate at a wide range of temperatures.

4. The PIC16C610 is a versatile device, which can be configured to perform a wide range of functions. It has a built-in timer, which can be used to generate precise time delays. It also has a built-in ADC, which can be used to convert analog signals into digital data.

Section 1

1. The PIC16C610 is a 16-bit microcontroller with 1K bytes of EPROM and 128 bytes of RAM. It is designed for use in a wide range of applications, including data acquisition, control systems, and communications.

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POWER UNIT

The power unit is responsible for providing the PIC16C610 with the power it needs to operate. It consists of a power supply, a voltage regulator, and a decoupling capacitor. The power supply is connected to the PIC16C610 via a power pin, and the voltage regulator is connected to the PIC16C610 via a ground pin. The decoupling capacitor is connected to the PIC16C610 via a decoupling pin.

The power unit is designed to provide the PIC16C610 with a stable 5V supply. The voltage regulator is a 7805, which is a fixed 5V regulator. The decoupling capacitor is a 0.1µF capacitor, which is used to filter out any noise or ripple on the supply line.

The power unit is a simple and reliable design, which makes it easy to build and test. It is suitable for use in a wide range of applications, including data acquisition, control systems, and communications.



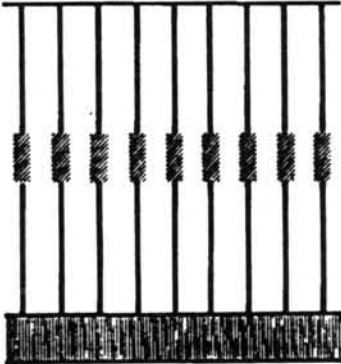
Before you install the first component, read and follow these instructions.

TRACING COMPONENTS

MAIN CIRCUIT BOARD

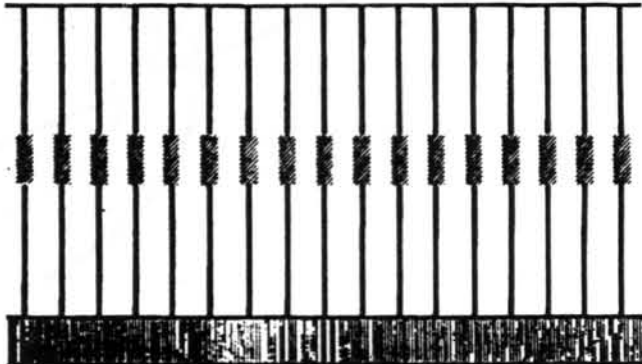
Section 1

3300 Ω (org-org-red) resistor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
27 kΩ (red-viol-org) resistor	_____
100 kΩ, 1% (brn blk-blk-org) resistor	_____
100 kΩ, 1% (brn-blk-blk-org) resistor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
270 Ω (red-viol-brn) resistor	_____
.1 μF (104) axial-lead ceramic capacitor	_____



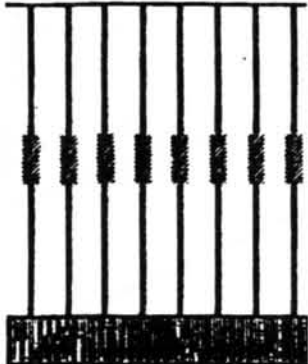
Section 2

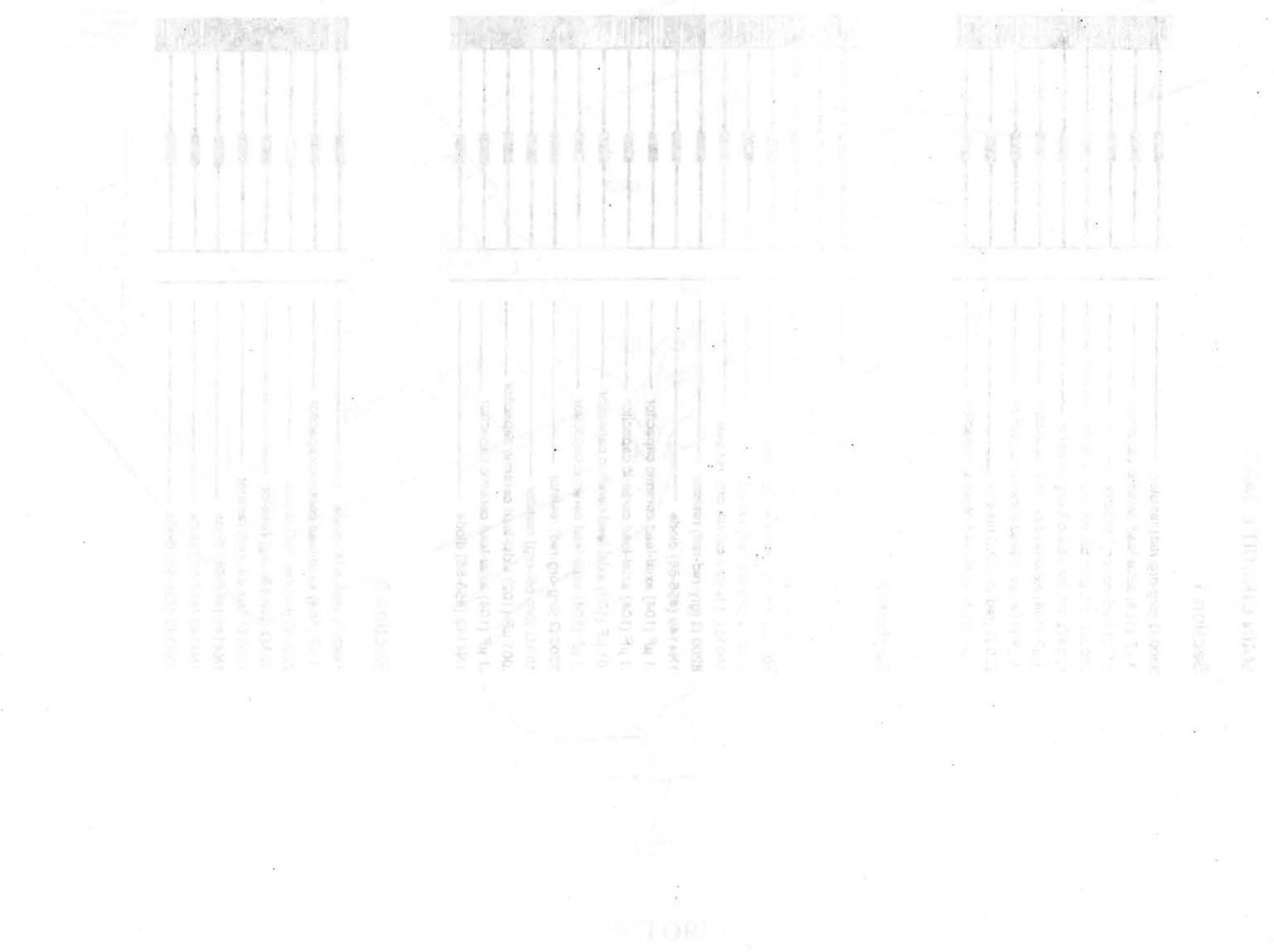
27 kΩ (red-viol-org) resistor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
150 Ω (brn-grn-brn) resistor	_____
100 kΩ, 1% (brn-blk-blk-org) resistor	_____
3300 Ω (org-org-red) resistor	_____
100 kΩ, 1% (brn-blk-blk-org) resistor	_____
8200 Ω (gry-red-red) resistor	_____
1N4149 (#56-56) diode	_____
.1 μF (104) axial-lead ceramic capacitor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
.01 μF (103) axial-lead ceramic capacitor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
3300 Ω (org-org-red) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
.001 μF (102) axial-lead ceramic capacitor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
1N4149 (#56-56) diode	_____



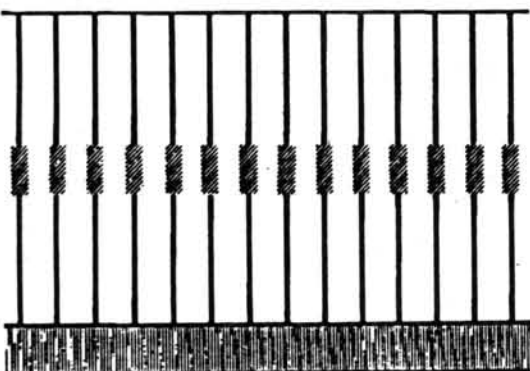
Section 3

1N6263 (#56-655) diode	_____
.1 μF (104) axial-lead ceramic capacitor	_____
2200 Ω (red-red-red) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
1000 Ω (brn-blk-red) resistor	_____
1N4149 (#56-56) diode	_____
1N4149 (#56-56) diode	_____
1N4149 (#56-56) diode	_____





10 kΩ (brn-blk-org) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
10 kΩ (brn-blk-org) resistor	_____
1000 Ω (brn-blk-red) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
10 kΩ (brn-blk-org) resistor	_____
470 Ω (yel-viol-brn) resistor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
.1 μF (104) axial-lead ceramic capacitor	_____

[illegible]