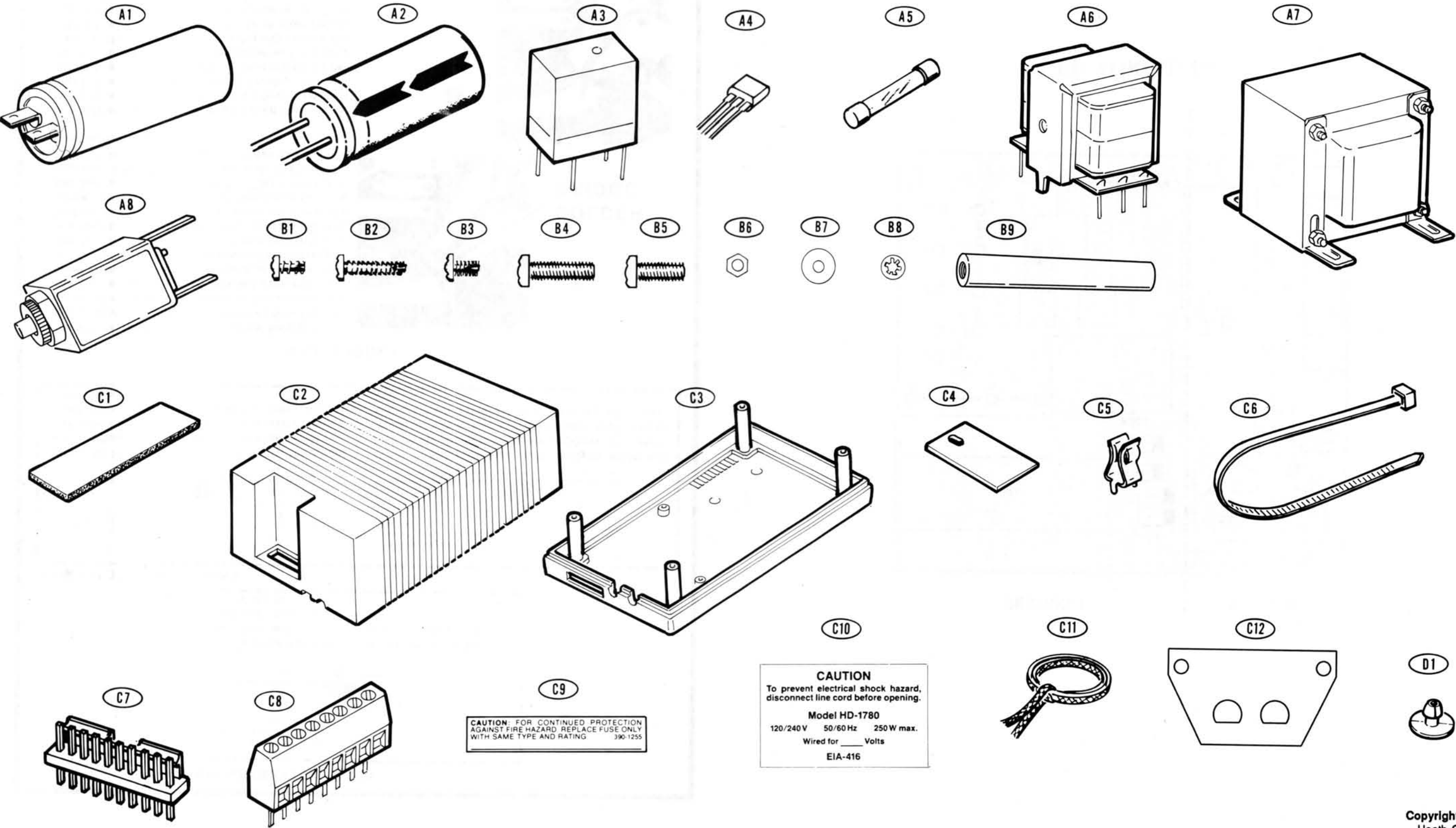


ILLUSTRATION BOOKLET

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

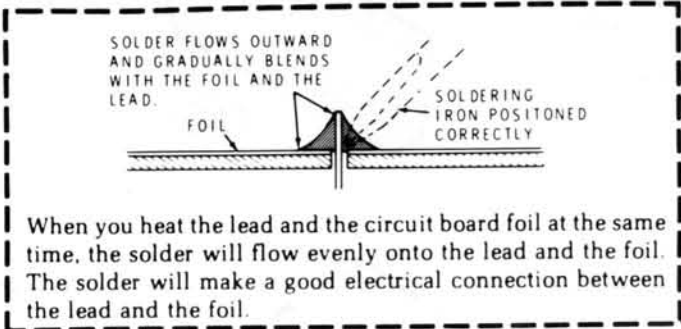
CAUTION
To prevent electrical shock hazard,
disconnect line cord before opening.

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

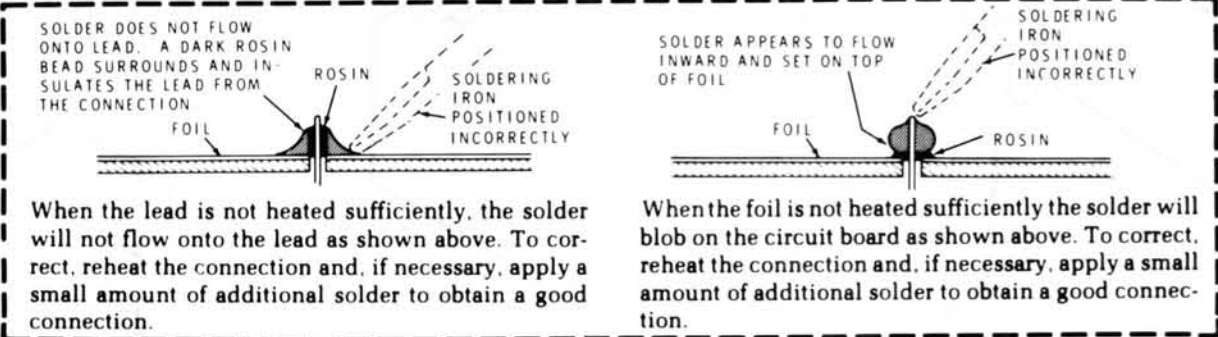
Model HD-1780

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Printed in Hong Kong

A GOOD SOLDER CONNECTION



POOR SOLDER CONNECTIONS



SOLDER BRIDGES

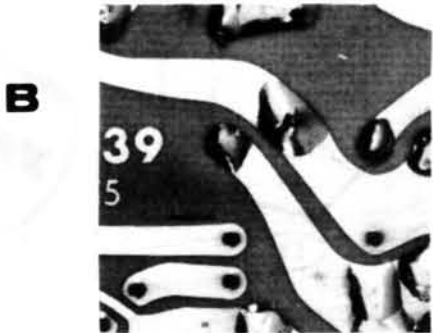
A solder bridge between two adjacent foils is shown in photograph A. Photograph B shows how the connection should appear. A solder bridge may occur if you accidentally touch an adjacent previously soldered connection, if you use too much solder, or if you "drag" the soldering iron across other foils 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.

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.



A

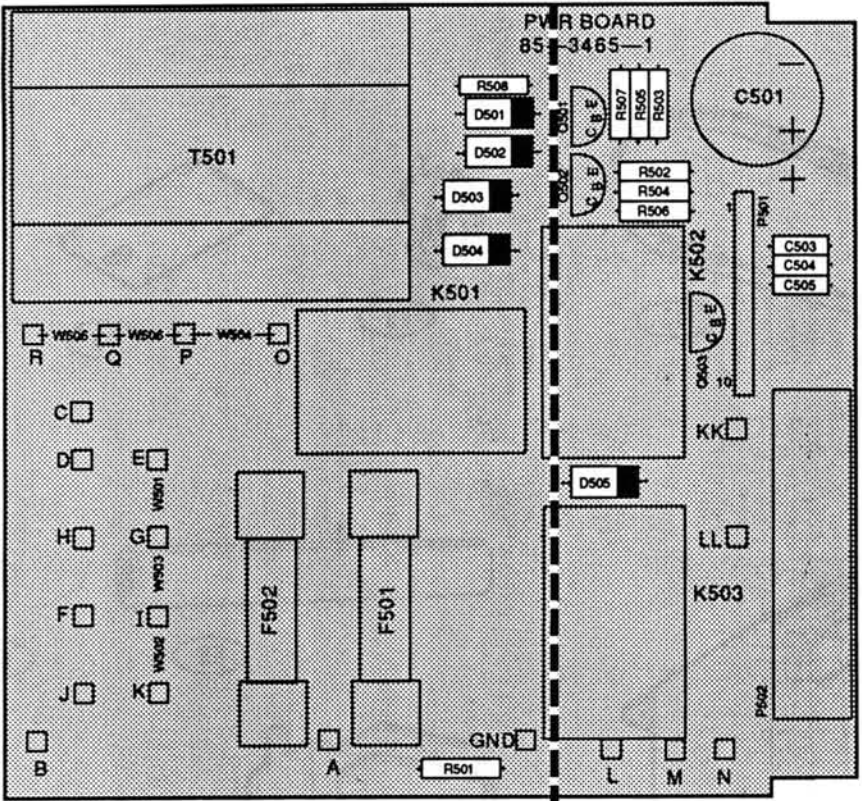
SOLDER BRIDGE



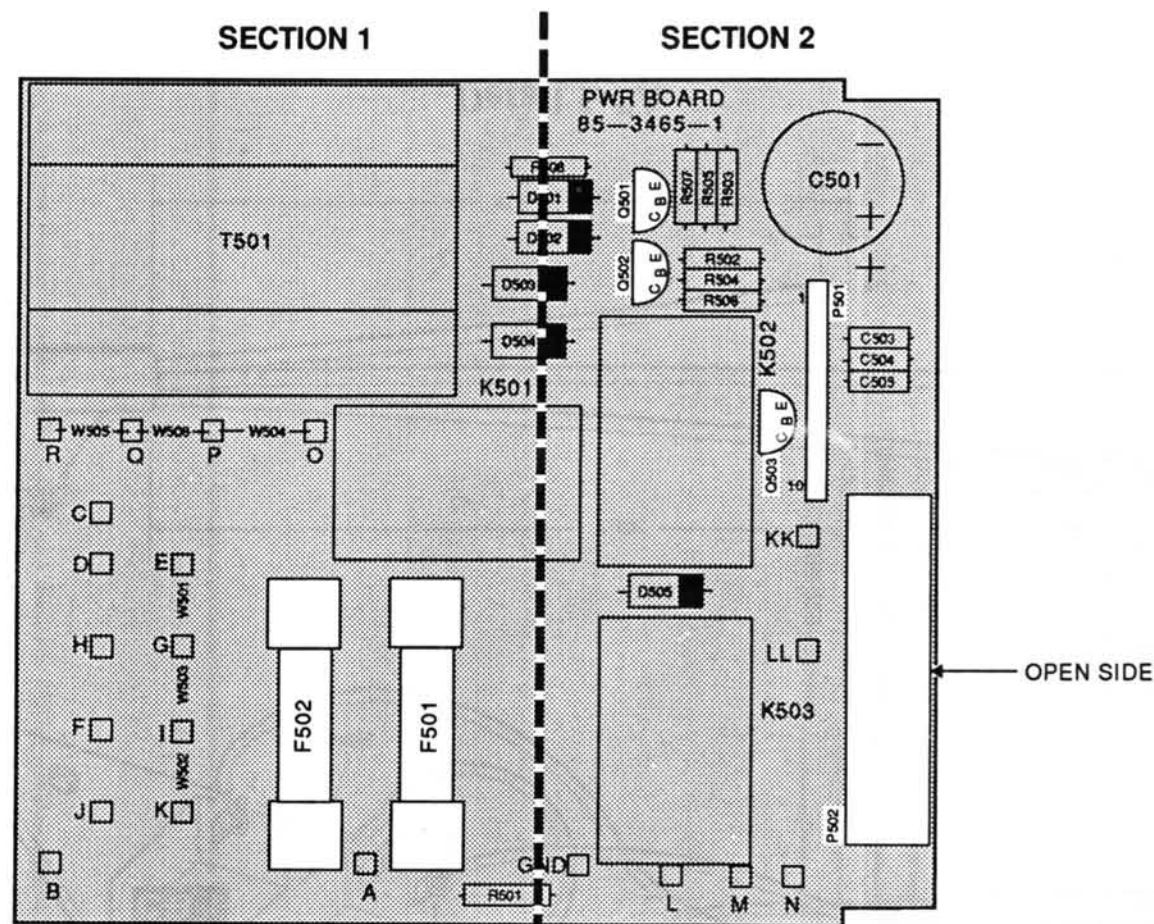
Detail 1-1A

SECTION 1

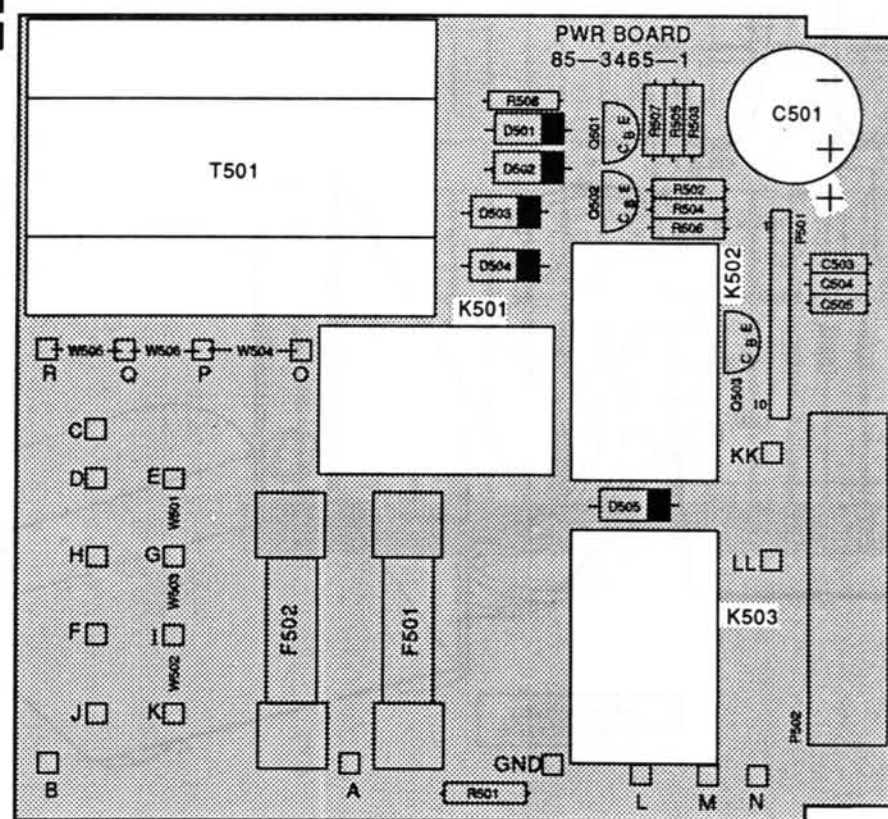
SECTION 2



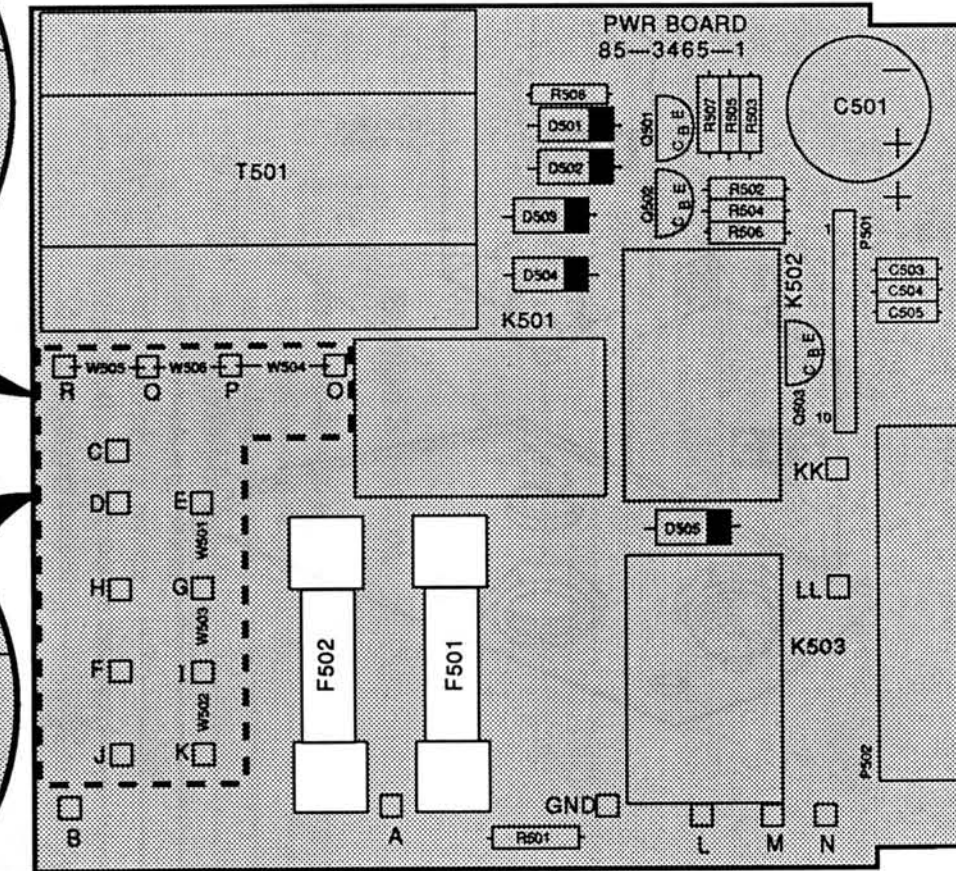
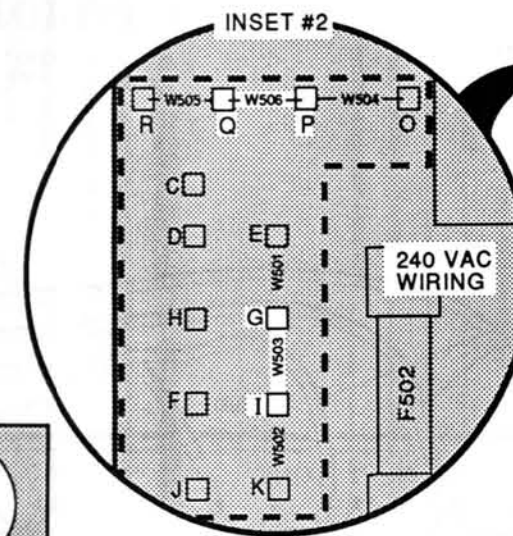
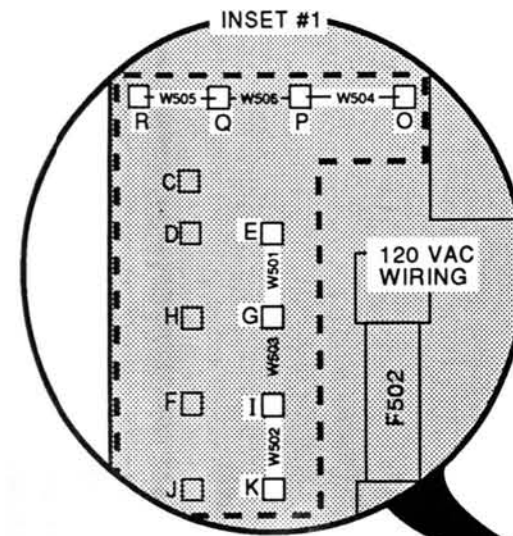
PICTORIAL 1-1



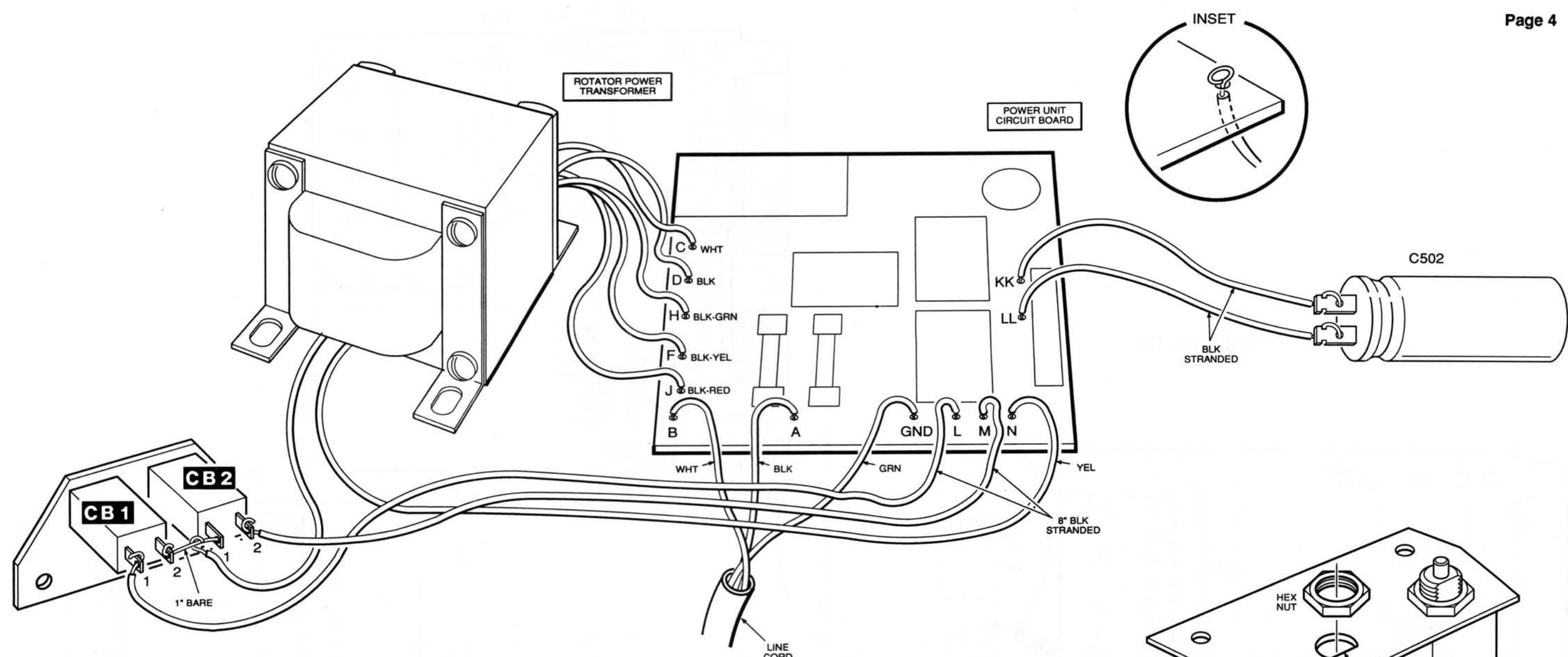
PICTORIAL 1-2



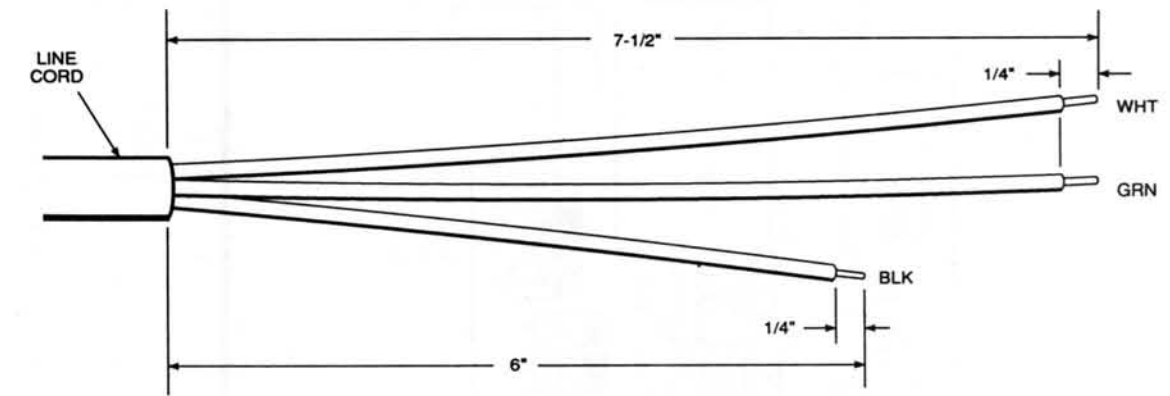
PICTORIAL 1-3



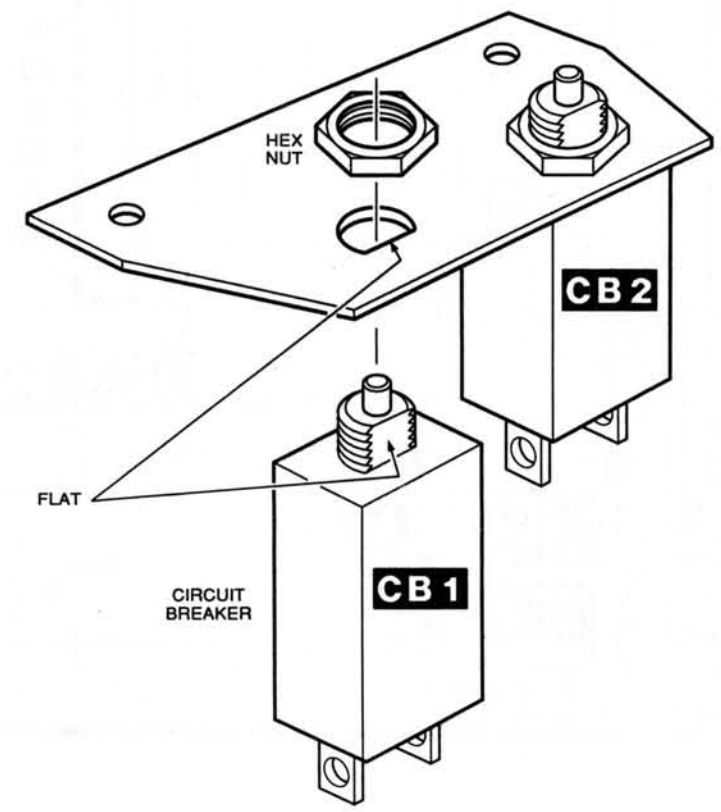
PICTORIAL 1-4



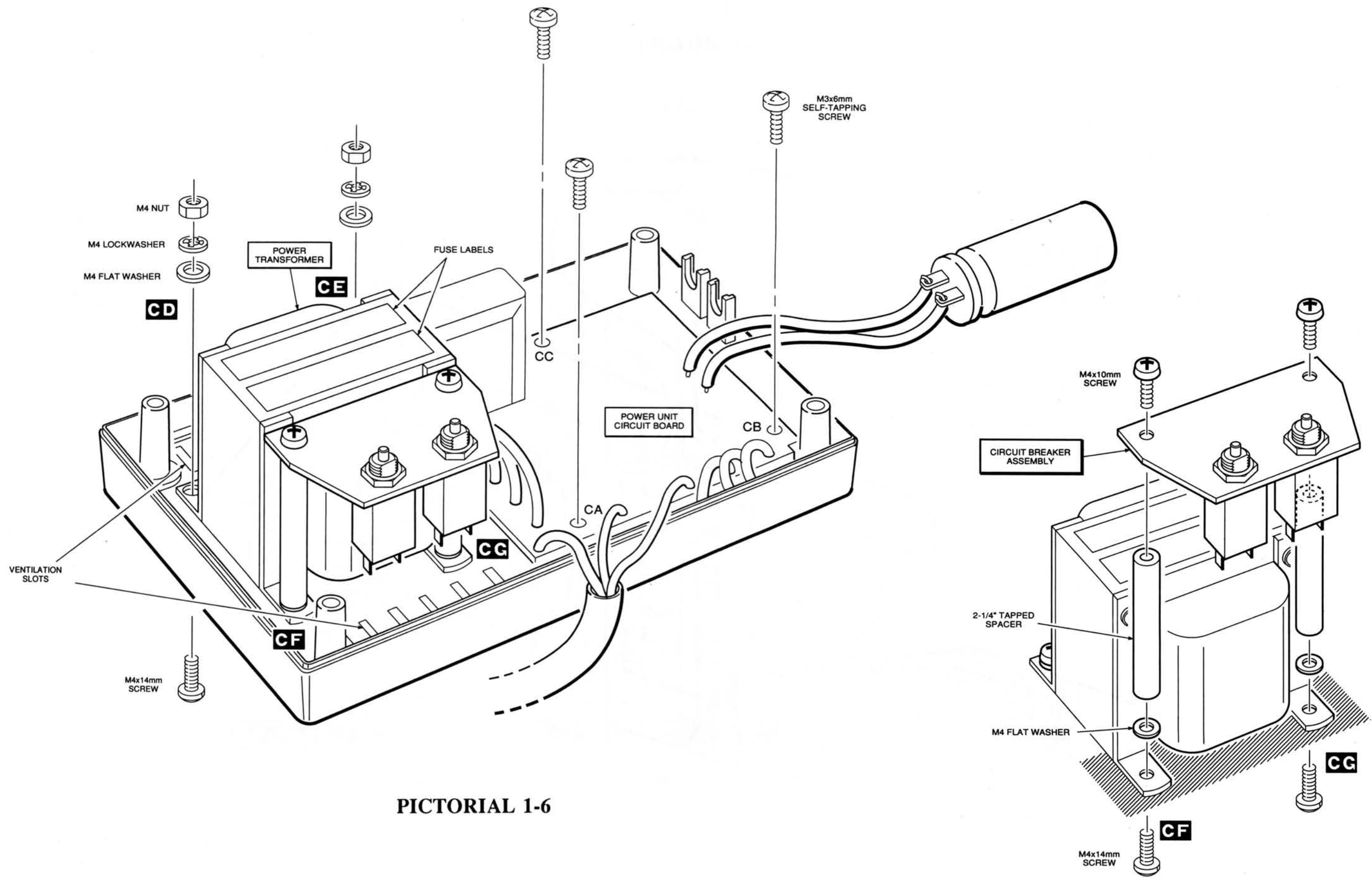
PICTORIAL 1-5

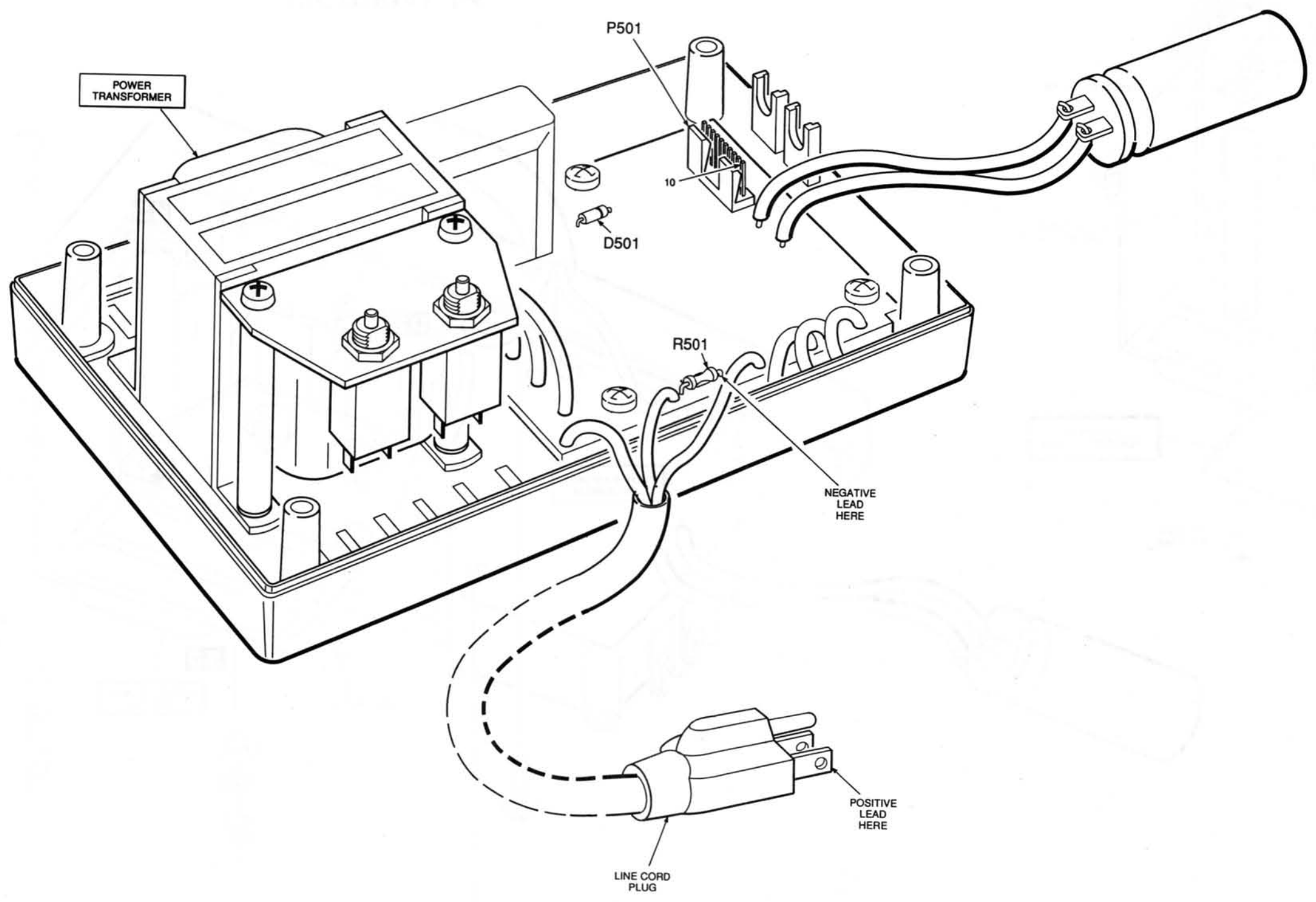


Detail 1-5A

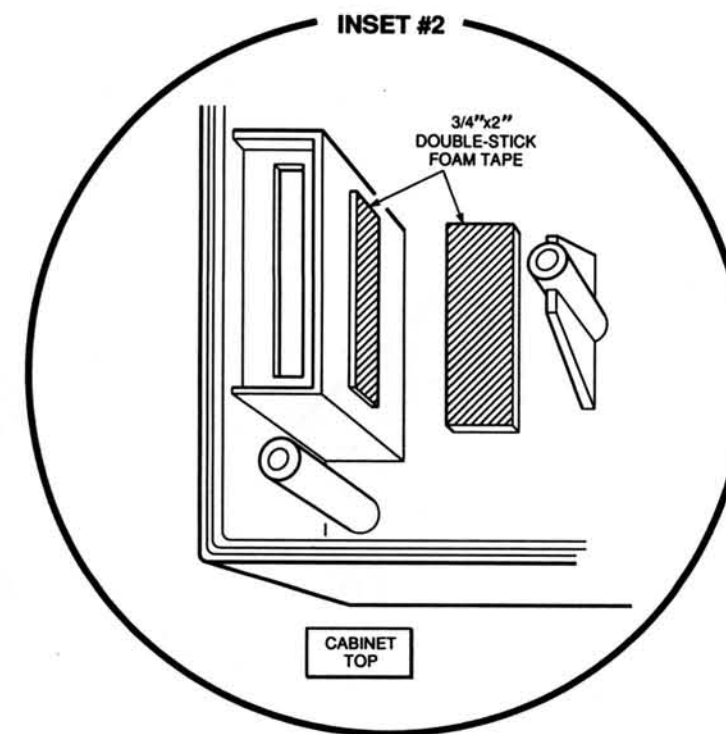
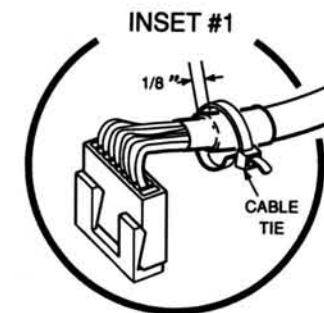
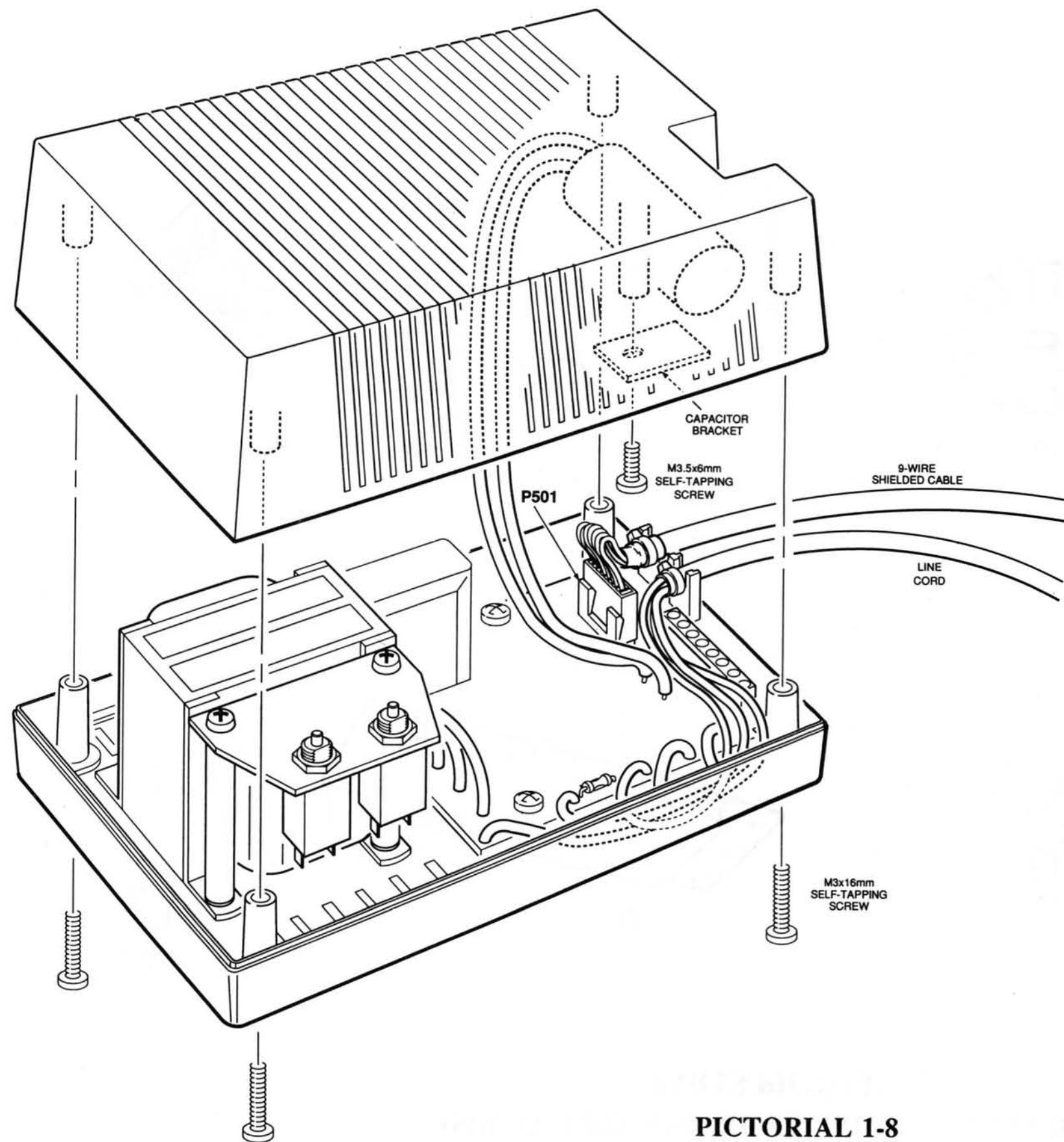


Detail 1-5B





PICTORIAL 1-7



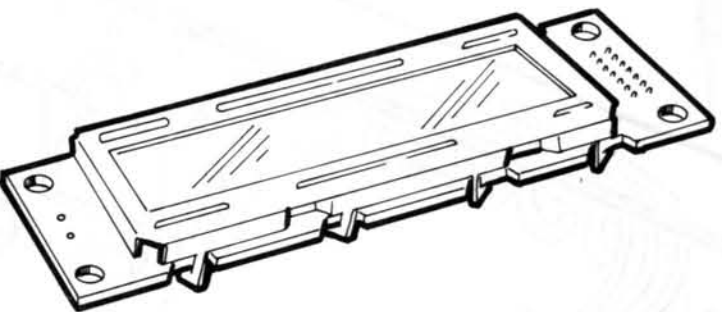
PICTORIAL 1-8

DISPLAY, LED, AND KEYBOARD CIRCUIT BOARD
PARTS PICTORIAL

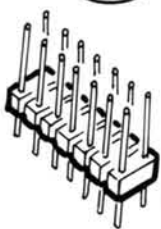
A1



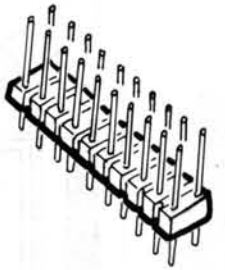
A2



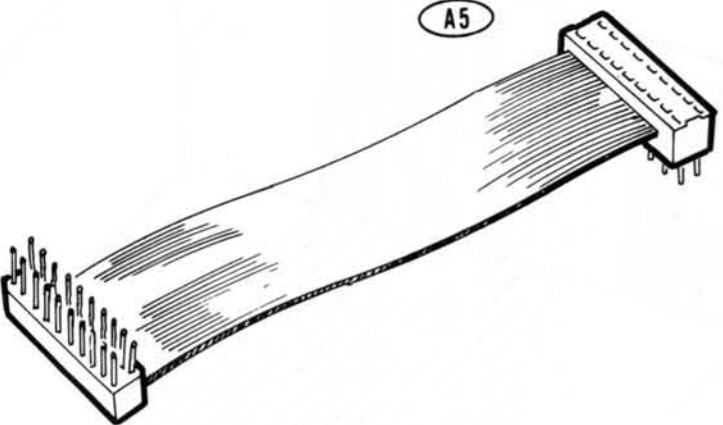
A3



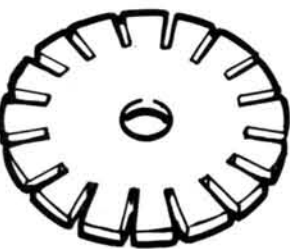
A4

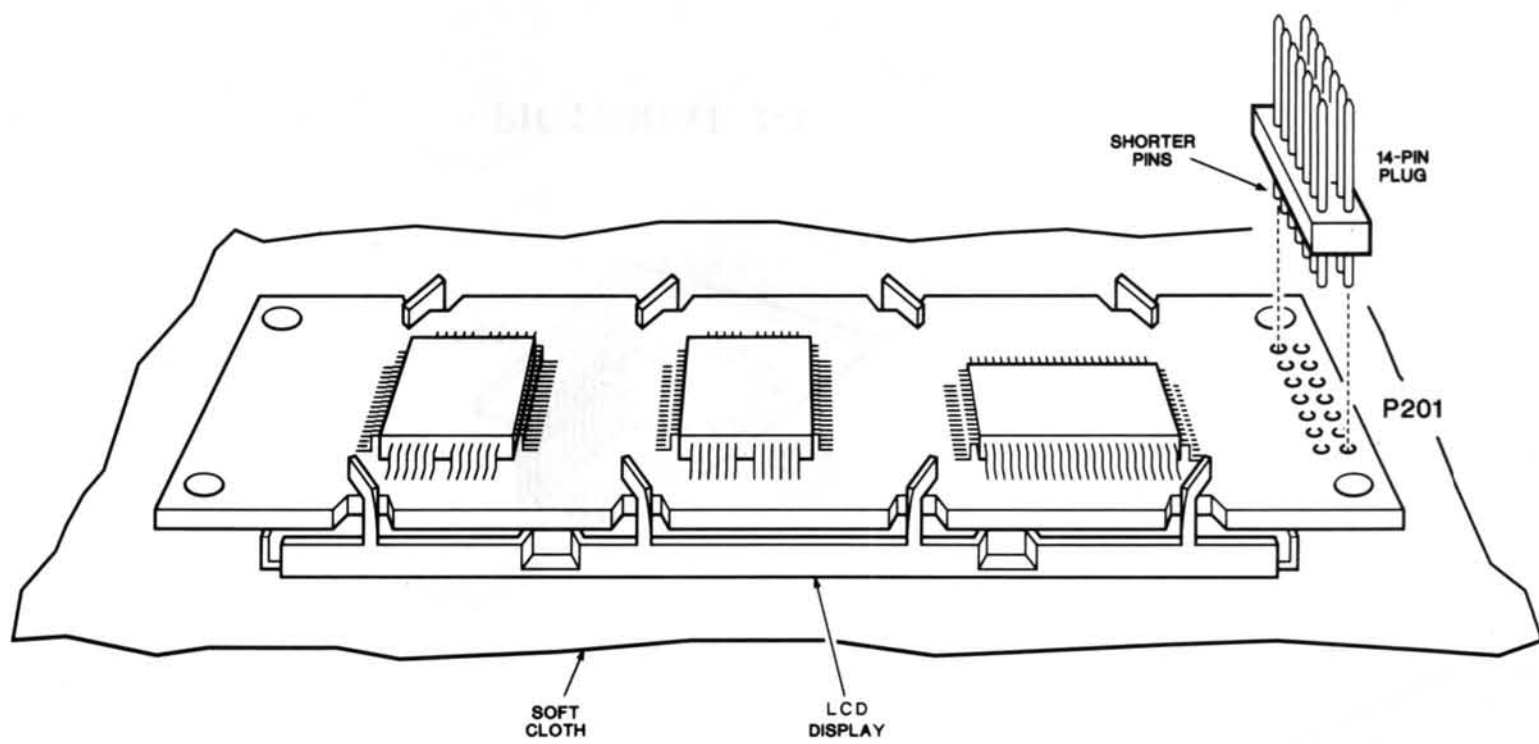


A5

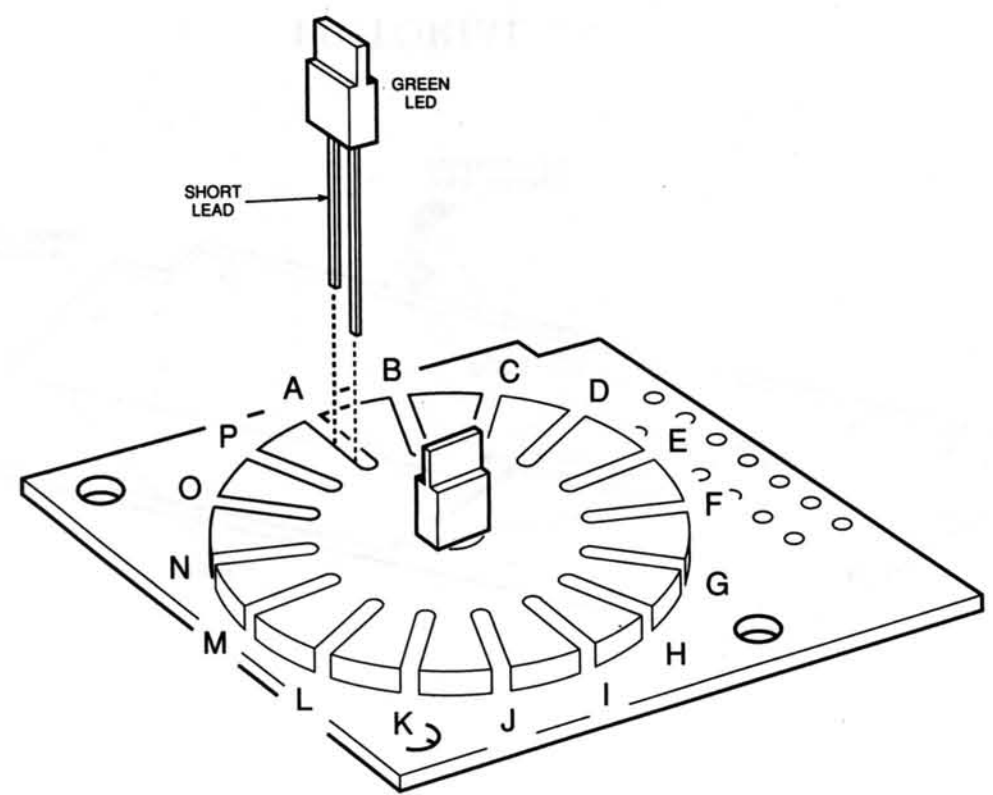


A6

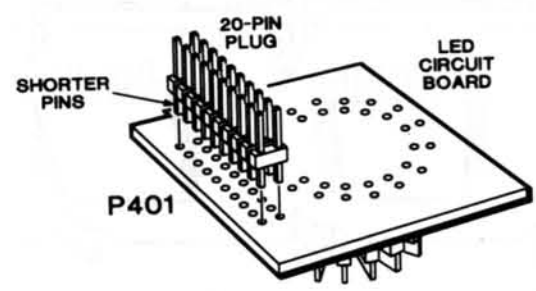




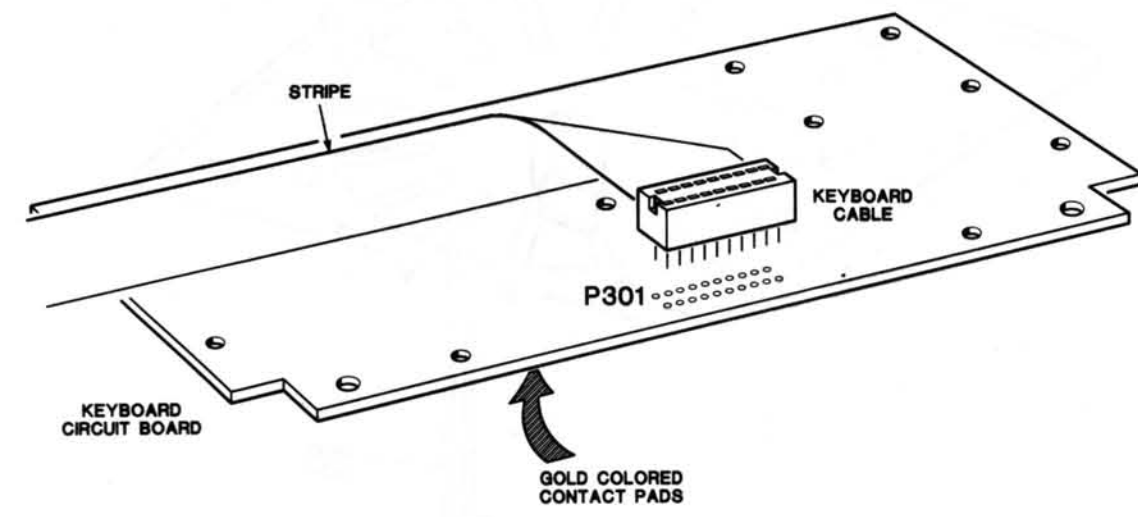
PICTORIAL 2-1



PICTORIAL 2-2

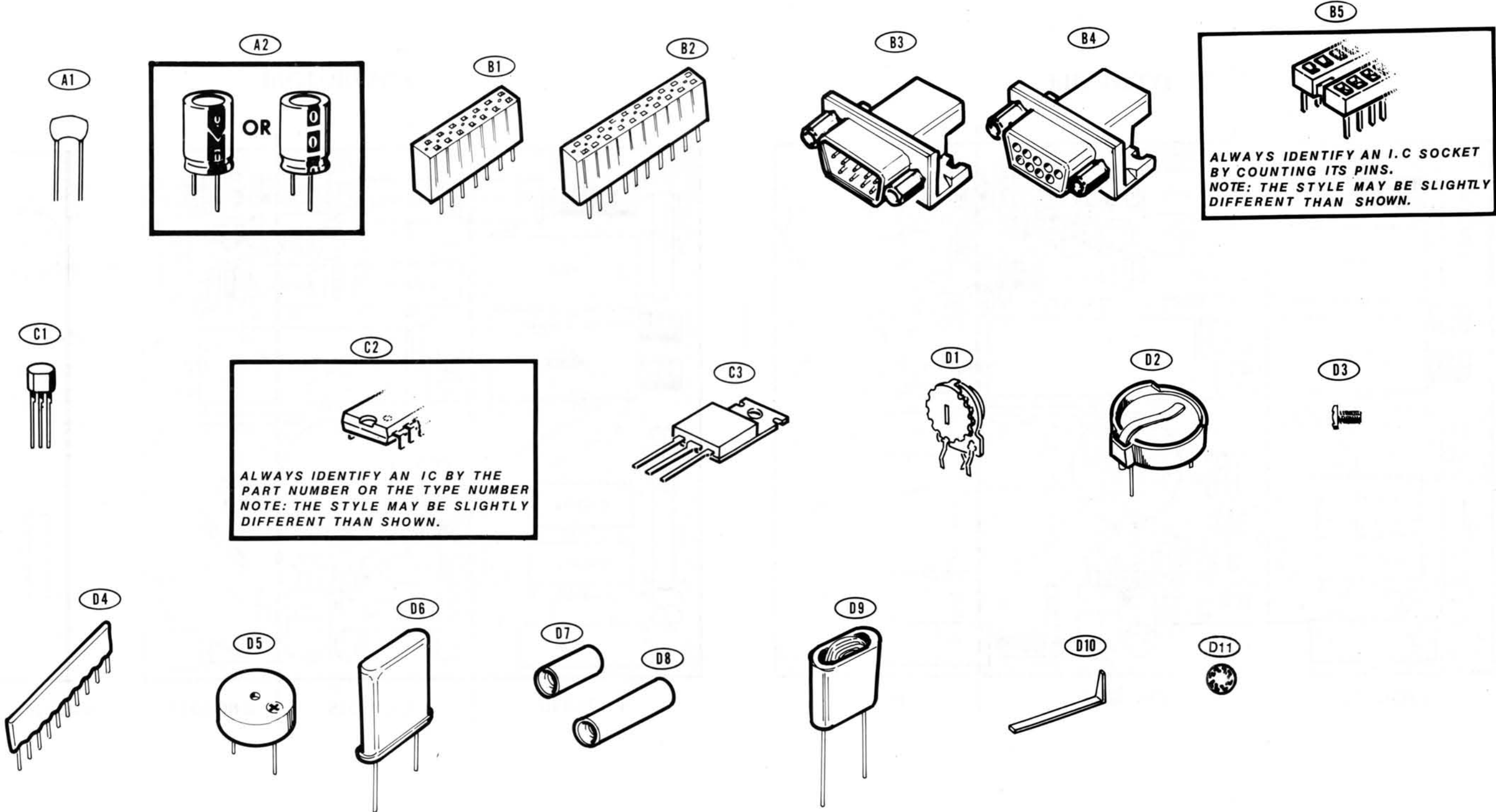


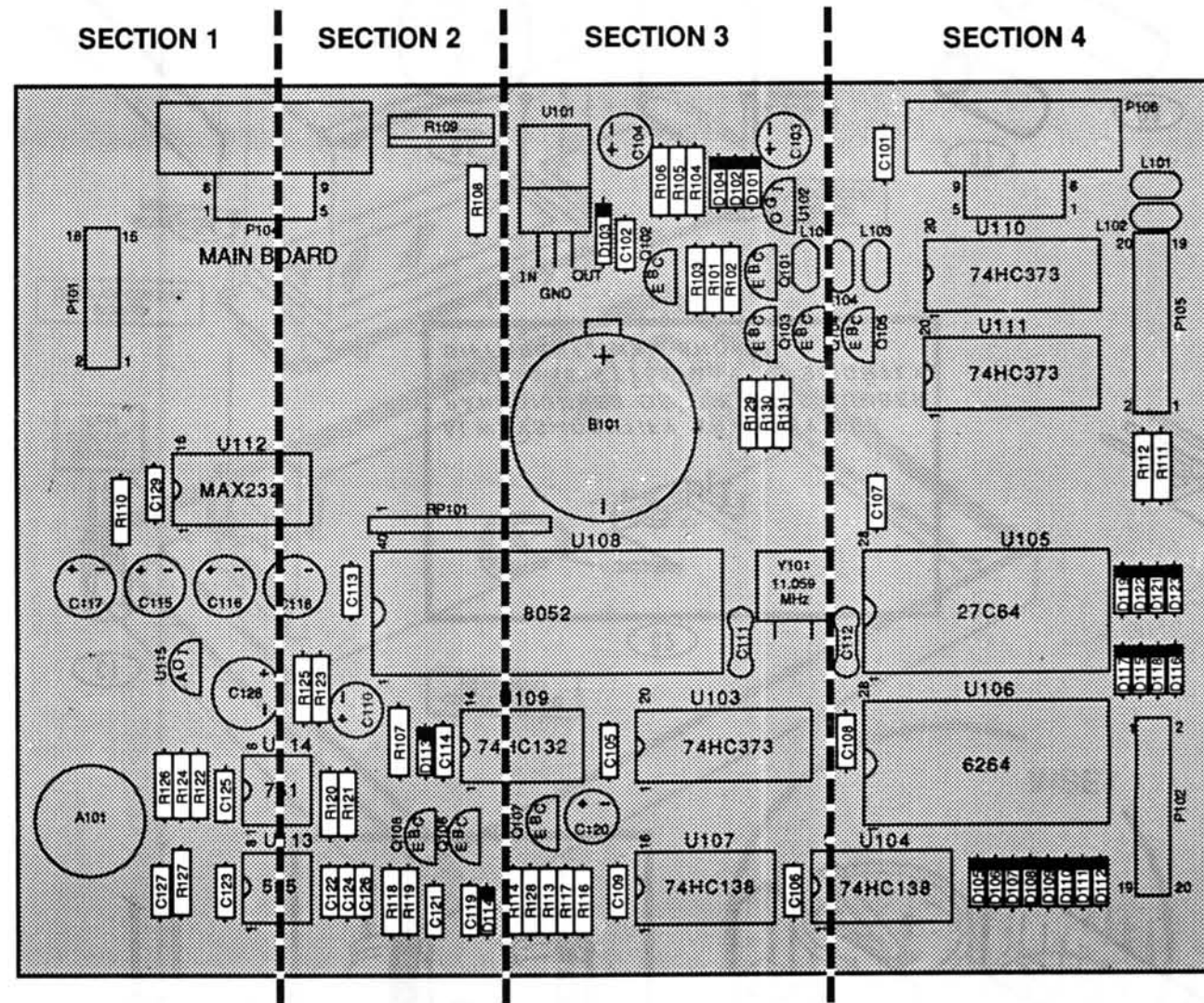
PICTORIAL 2-3



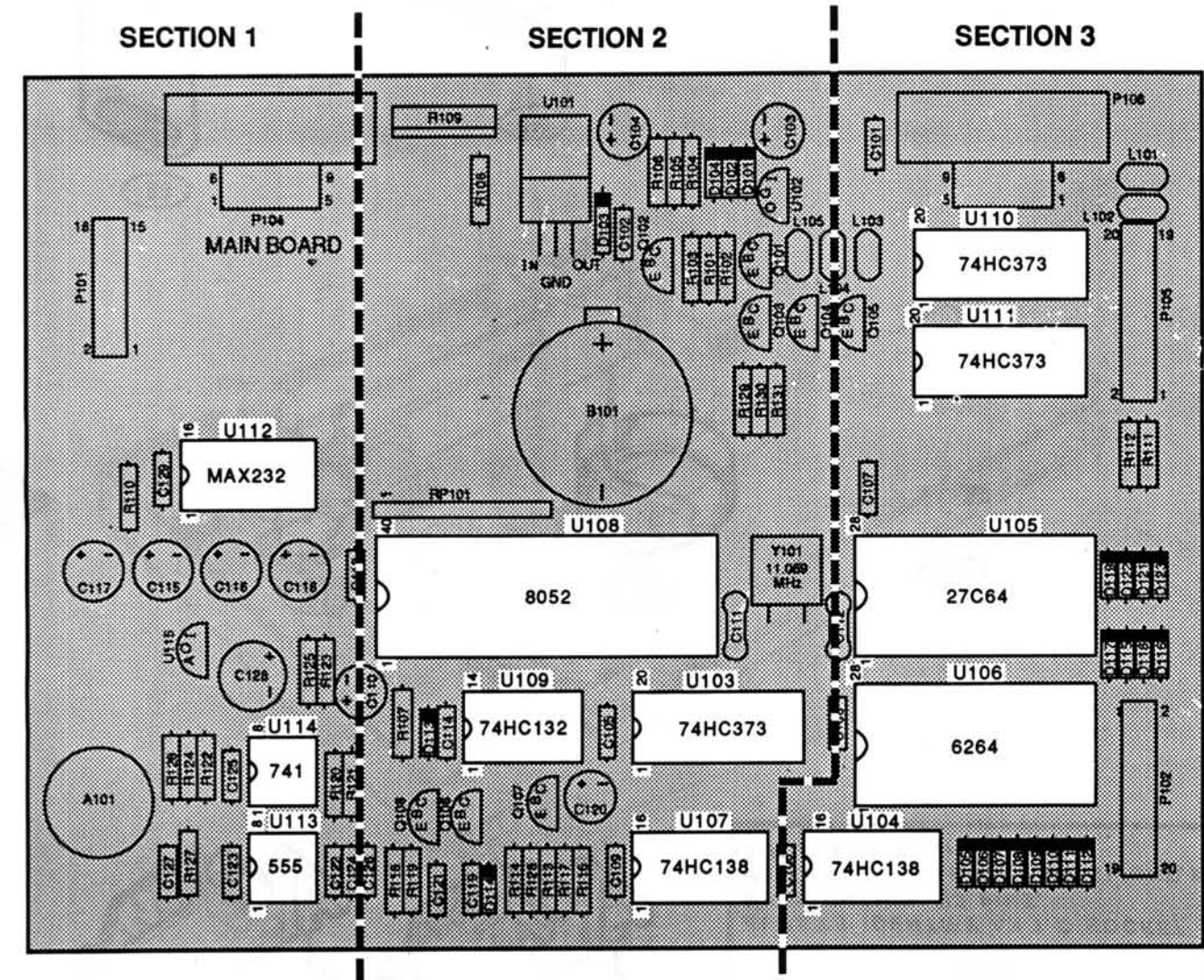
PICTORIAL 2-4

MAIN CIRCUIT BOARD PARTS PICTORIAL

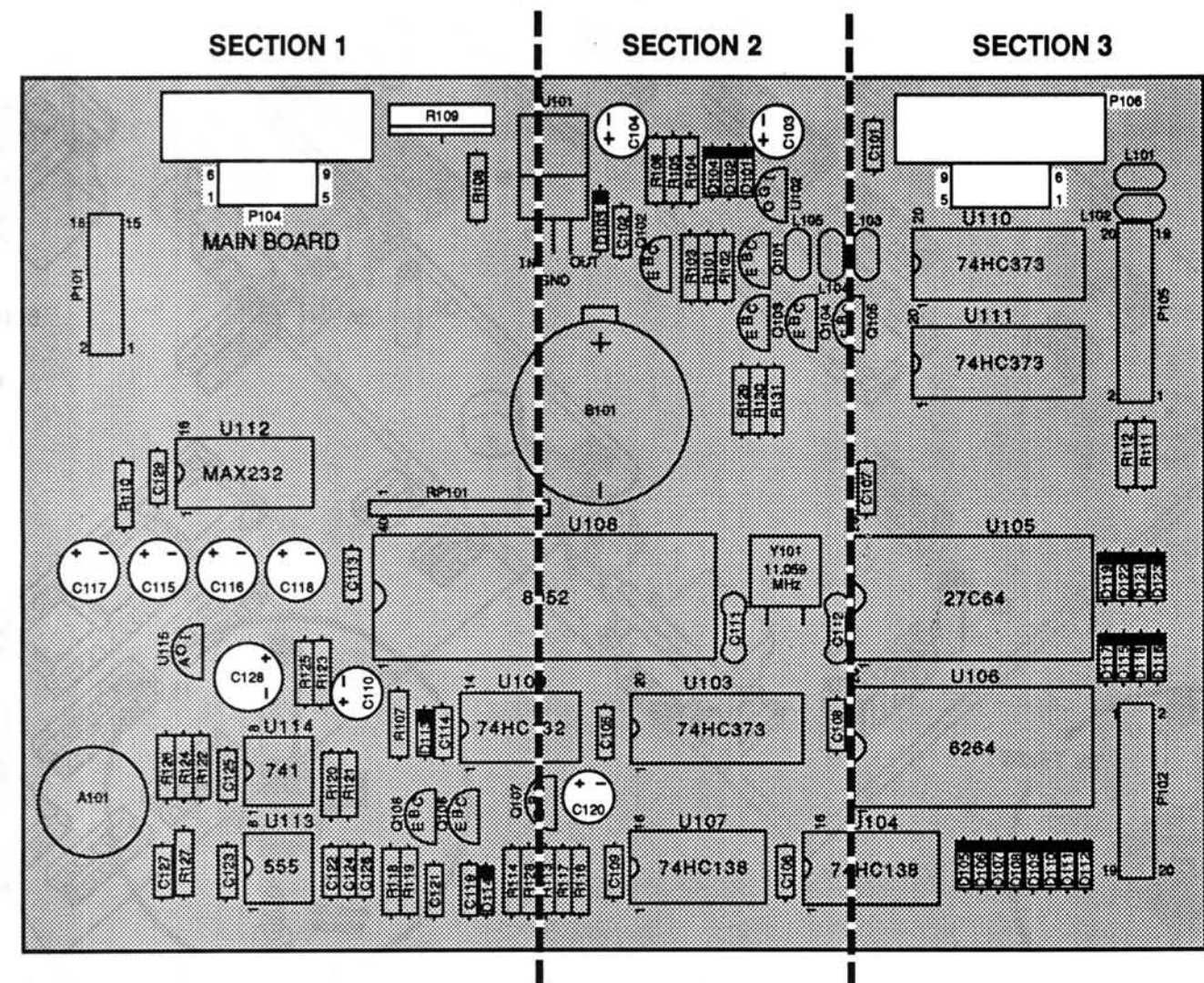
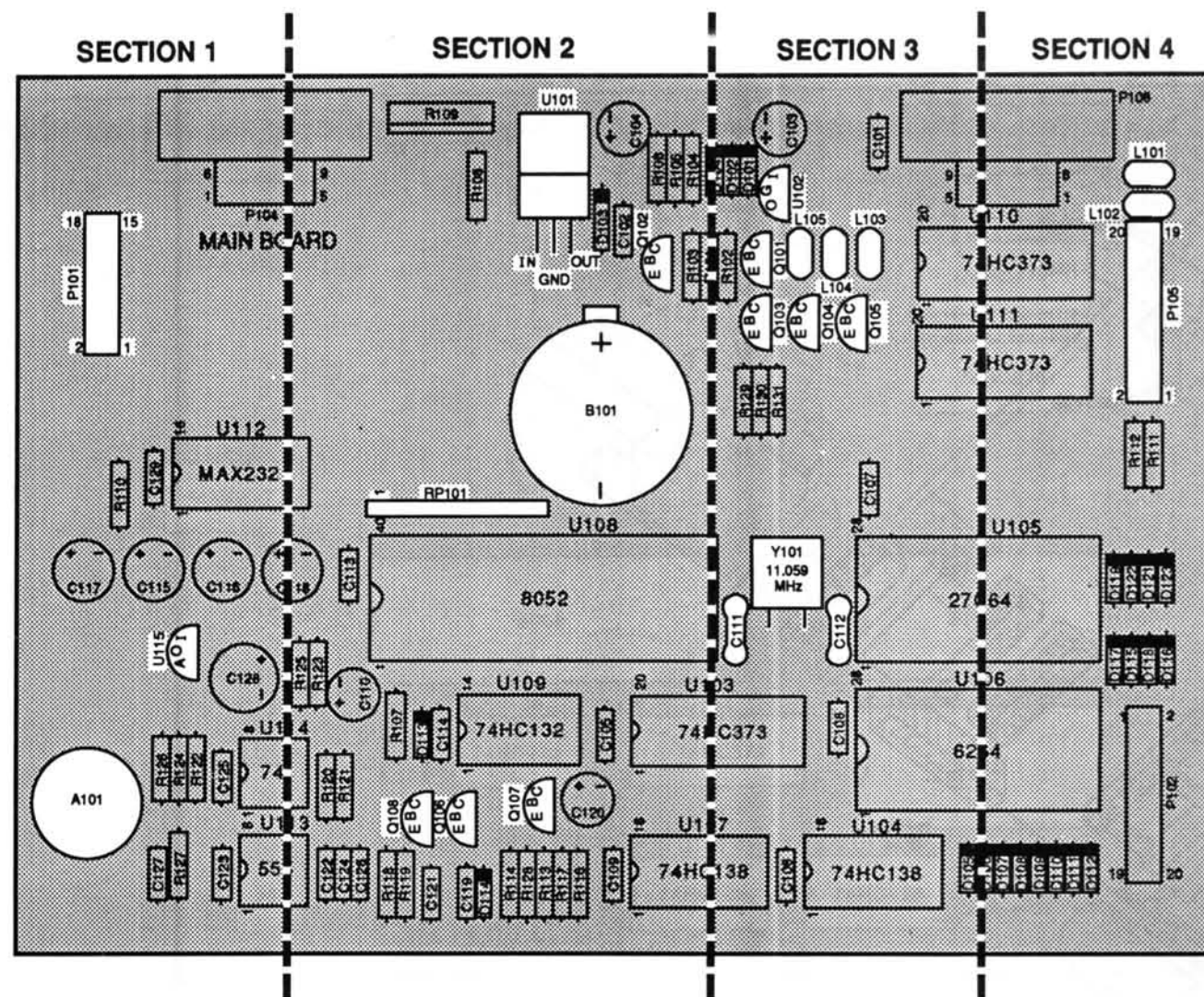


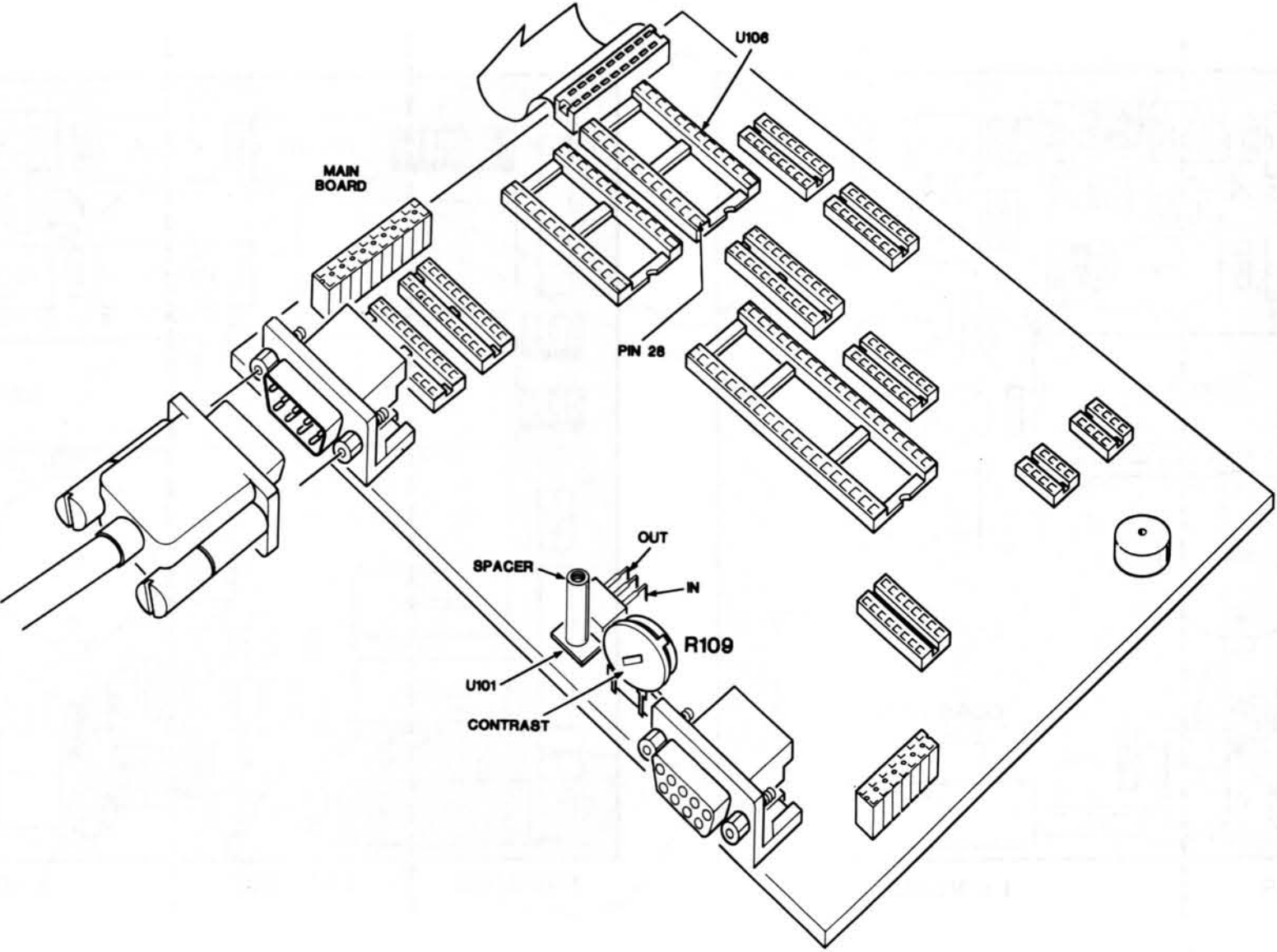


PICTORIAL 3-1

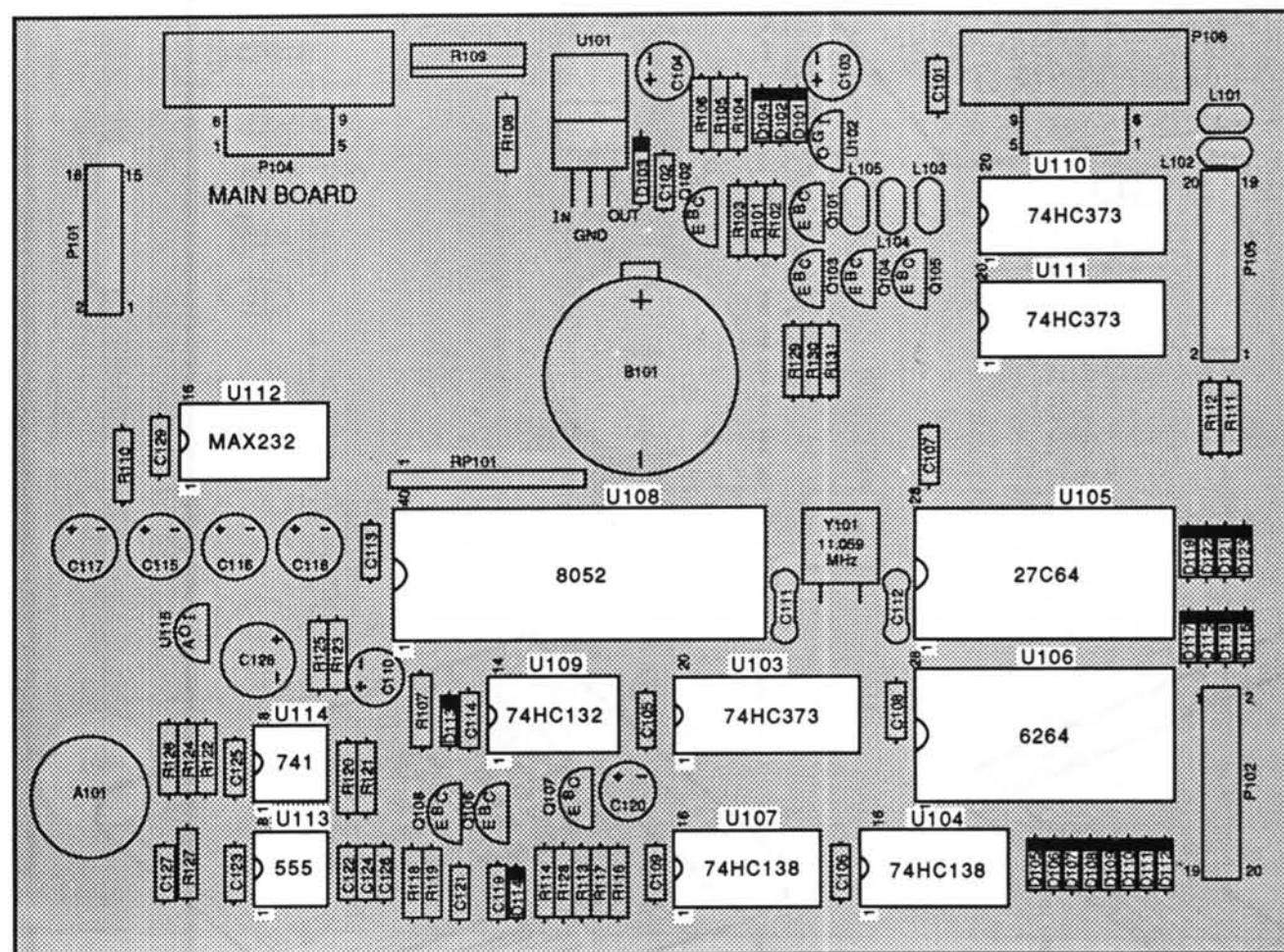


PICTORIAL 3-2

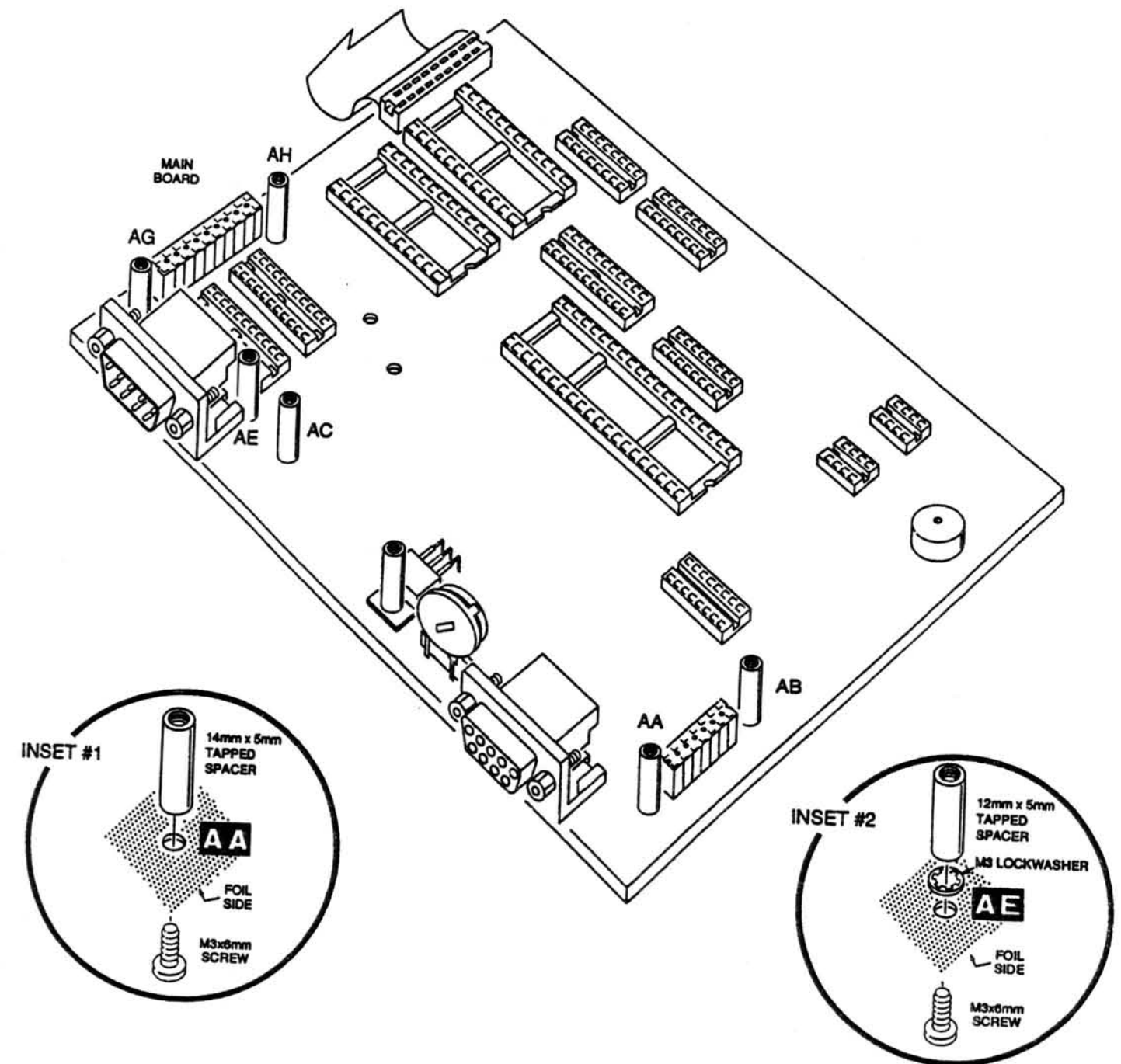




PICTORIAL 3-5

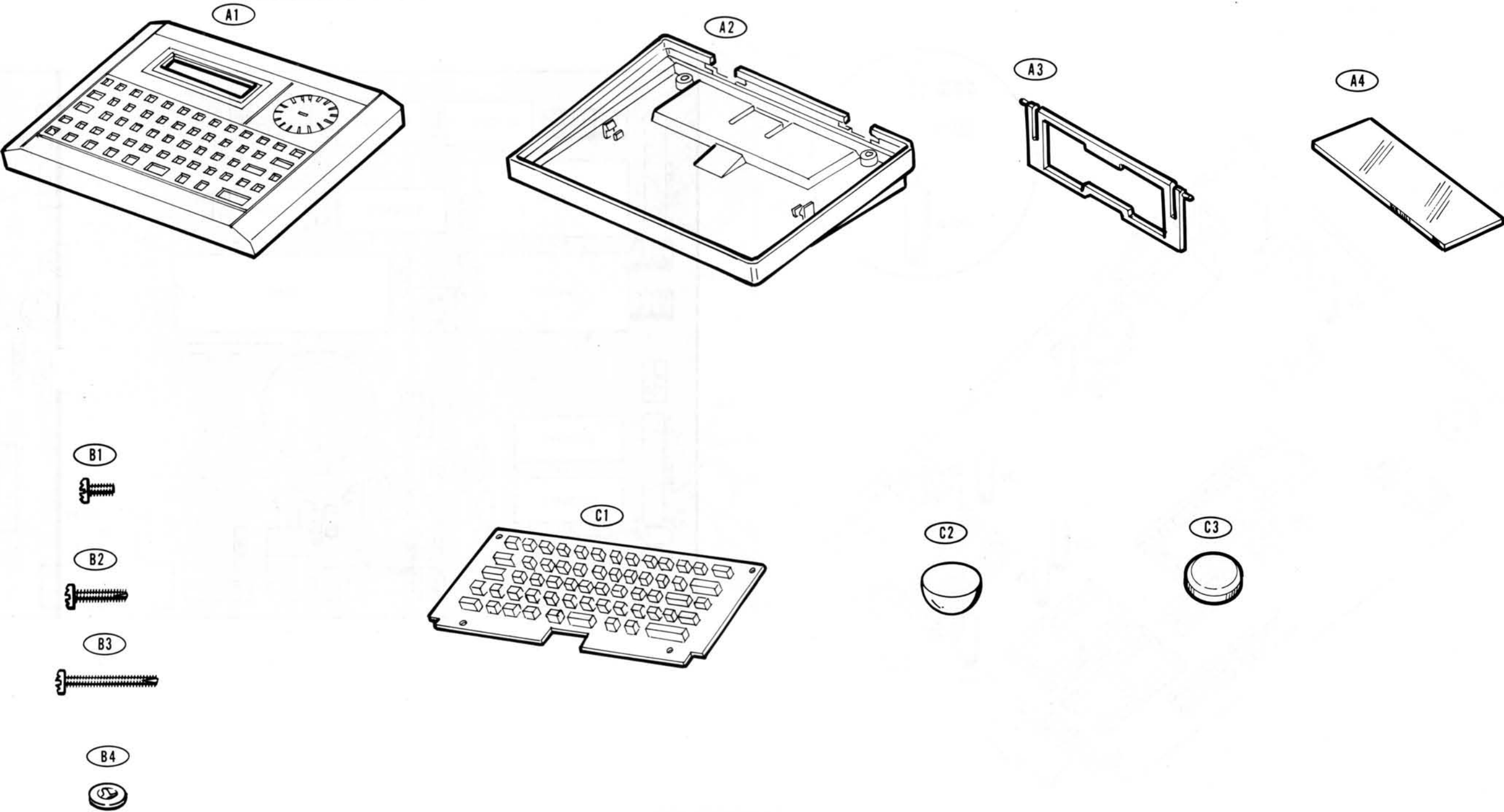


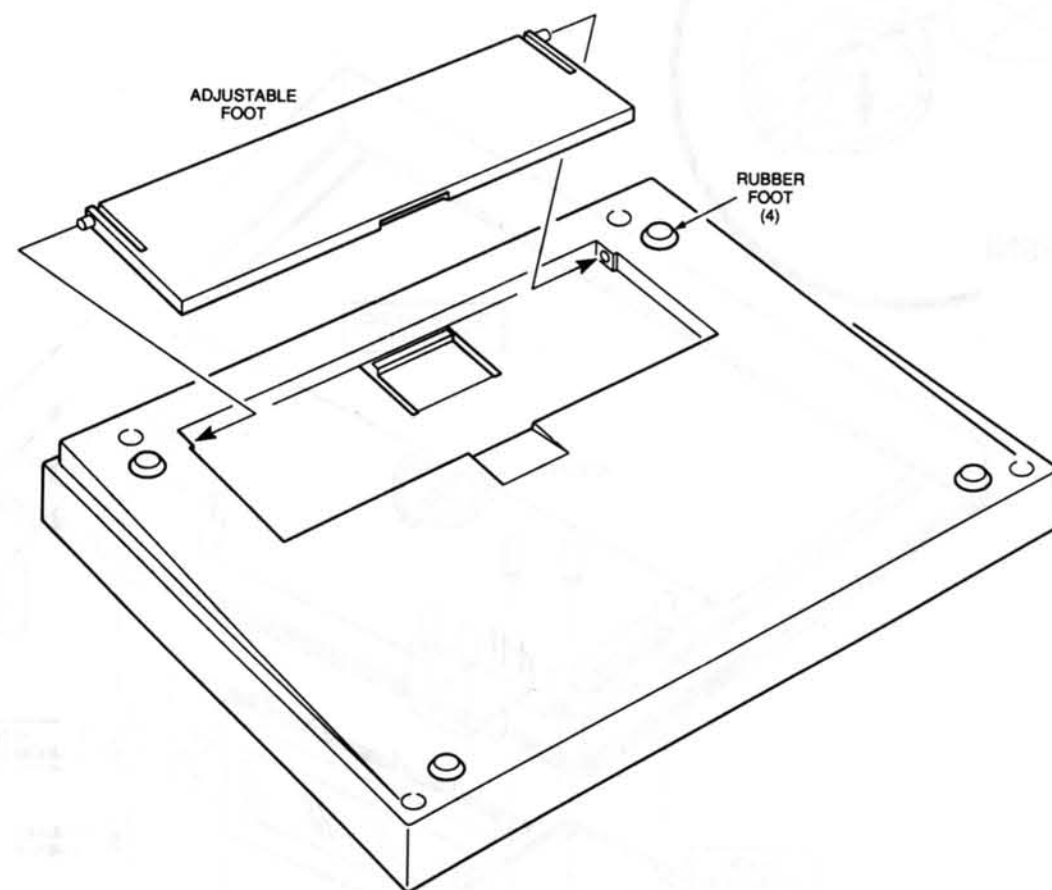
PICTORIAL 3-6



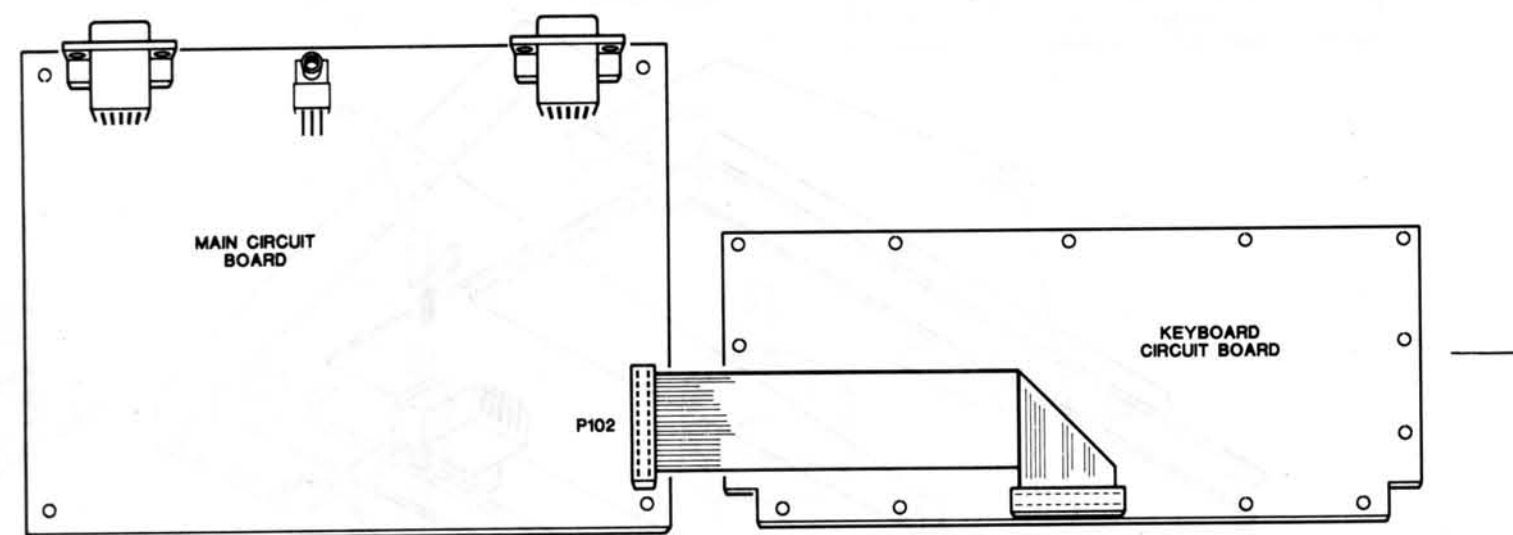
PICTORIAL 3-7

FINAL ASSEMBLY PARTS PICTORIAL

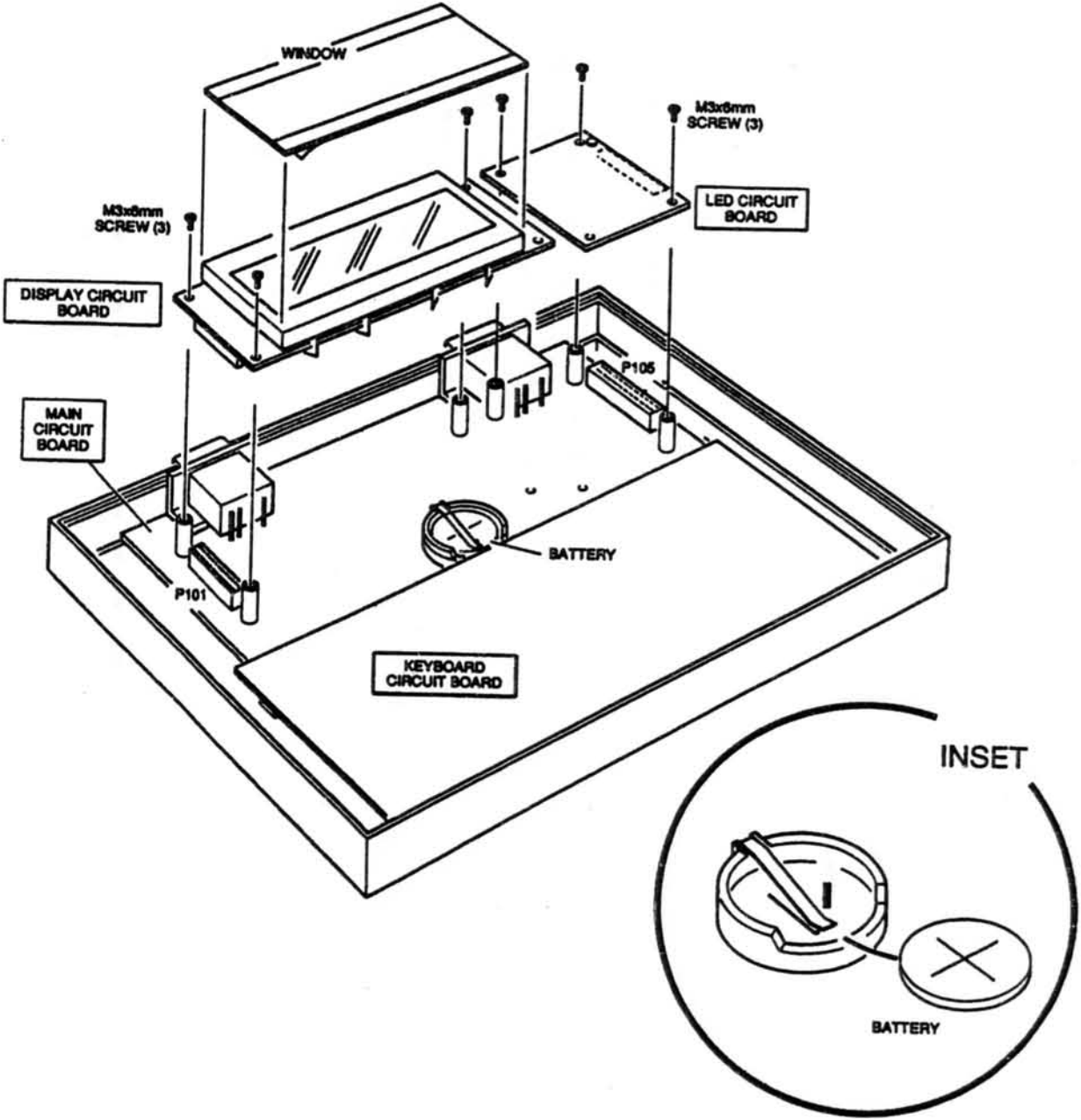




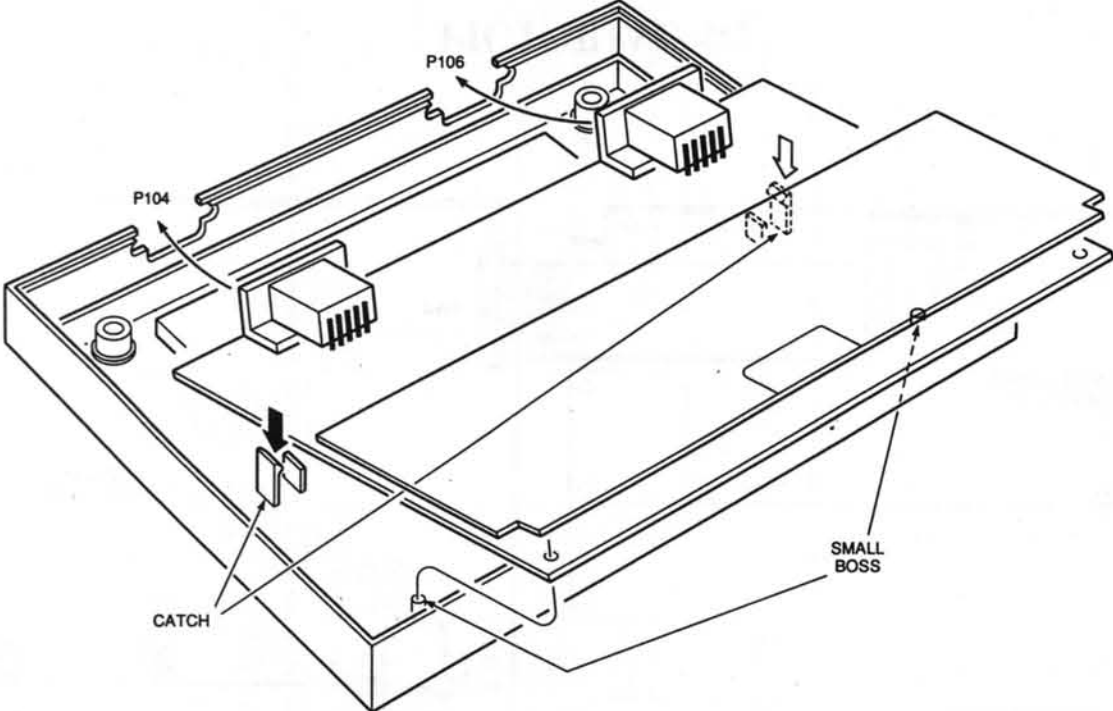
PICTORIAL 4-1



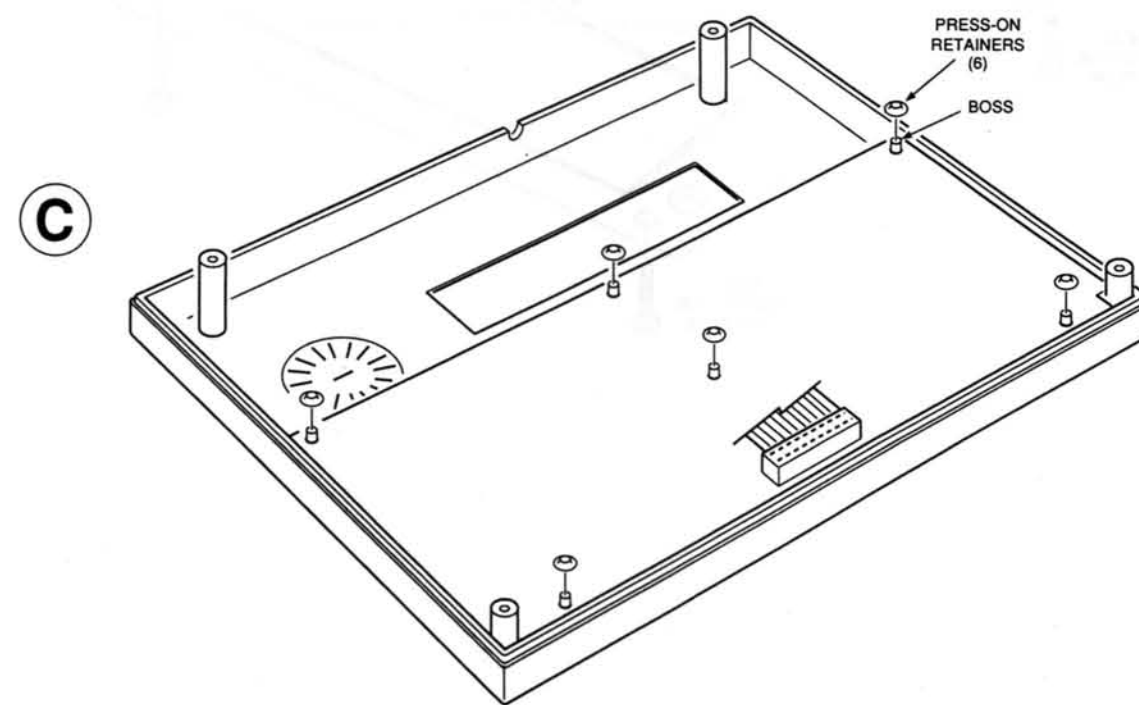
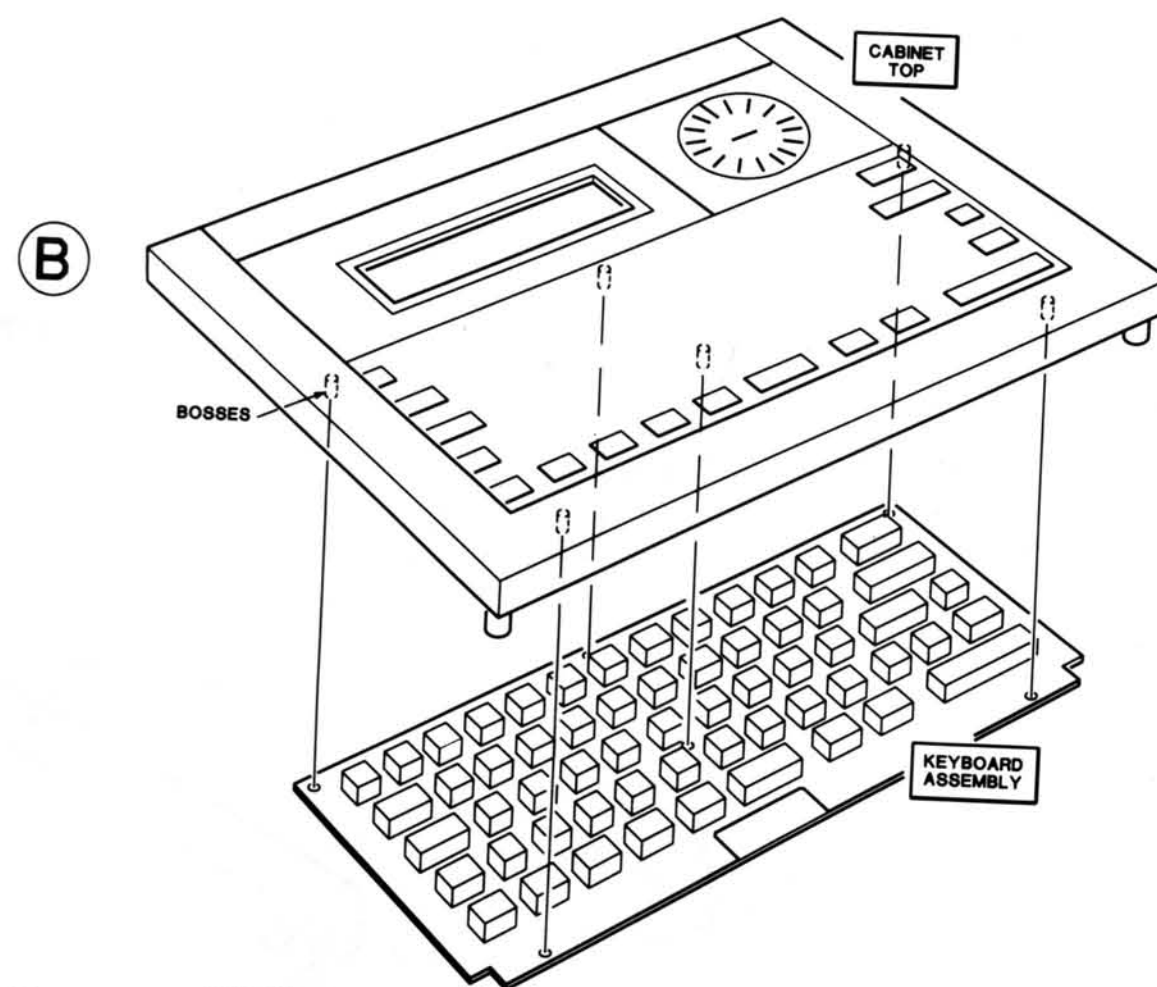
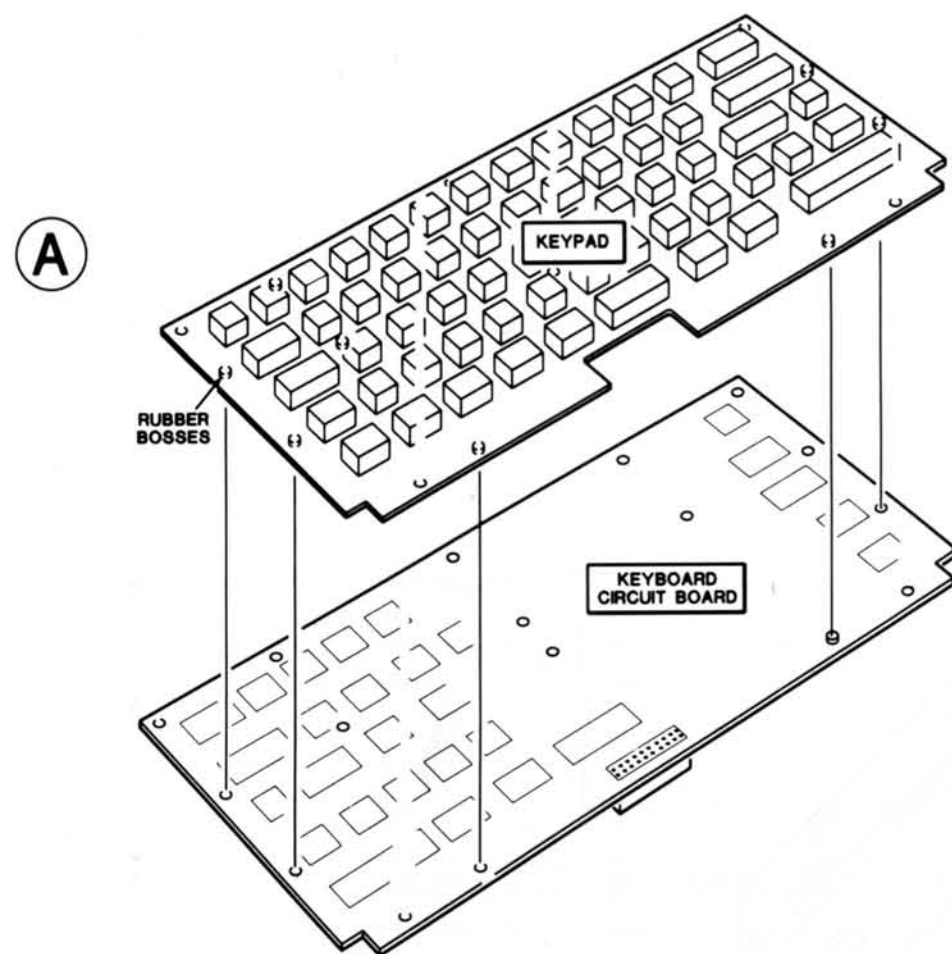
PICTORIAL 4-2



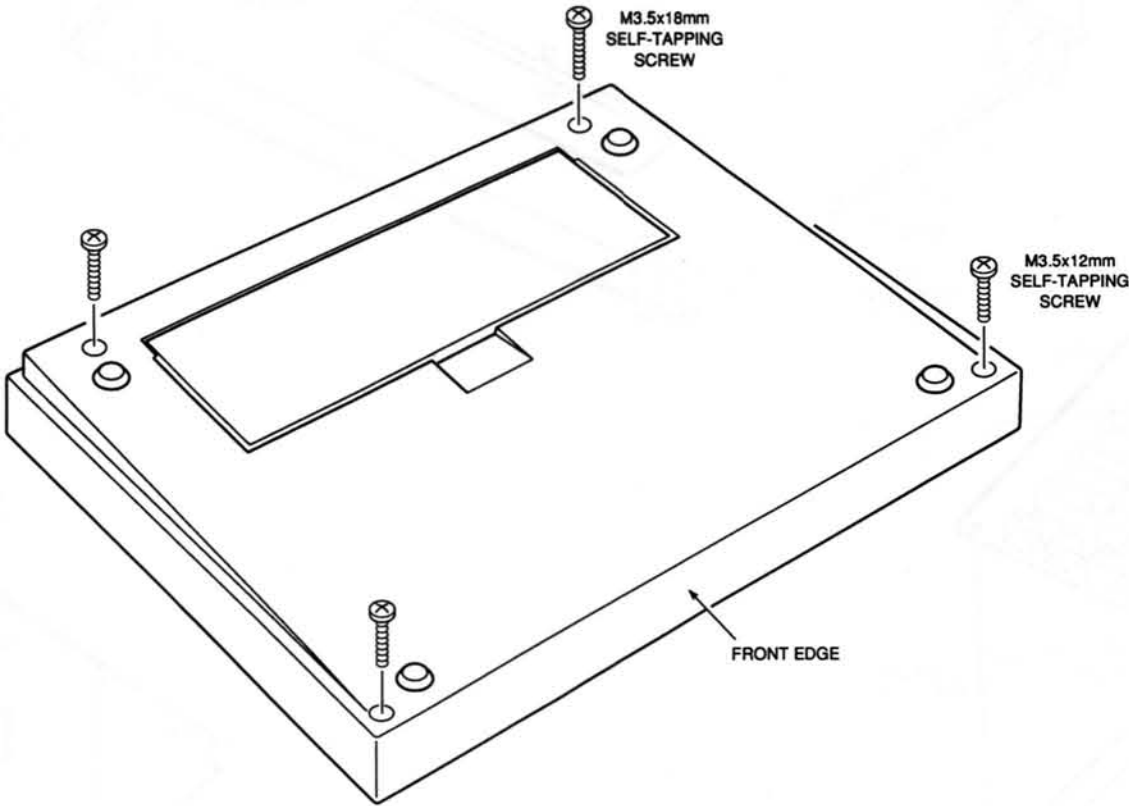
PICTORIAL 4-3



Detail 4-3A



PICTORIAL 4-4



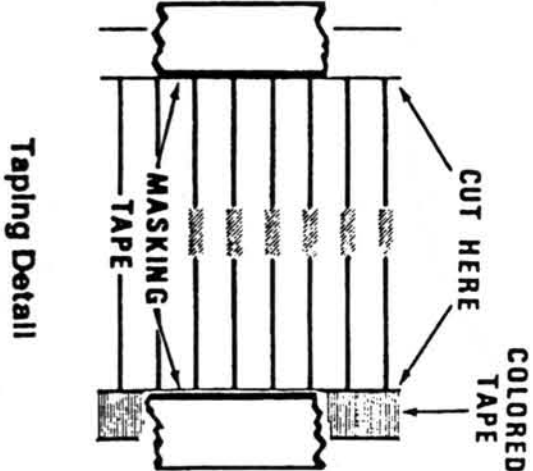
PICTORIAL 4-5

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

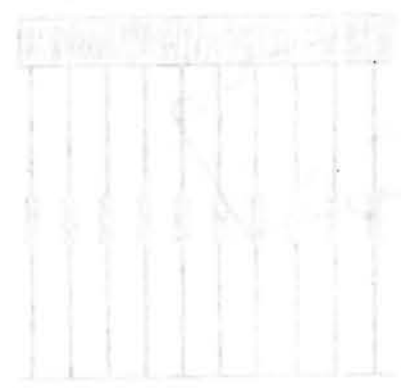
Section 1

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 timer, and an ADC. The power supply is used to convert the AC power from the wall into DC power, which is then used to power the PIC16C610. The timer is used to generate precise time delays, which are used to control the operation of the PIC16C610. The ADC is used to convert analog signals into digital data, which is then used by the PIC16C610 to make decisions about the operation of the system.

The power unit is a critical component of the PIC16C610 system, and it must be designed carefully to ensure that the PIC16C610 is always powered correctly. The power supply must be able to provide the PIC16C610 with the correct voltage and current, and the timer and ADC must be able to operate correctly at all times.



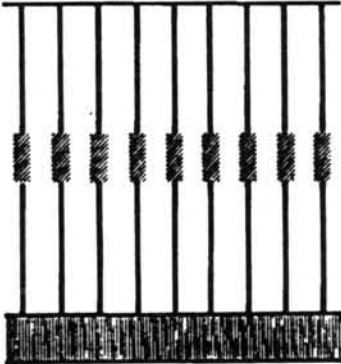
Before you install the first component, read and follow these instructions.

TRACED COMPONENTS CHART

MAIN CIRCUIT BOARD

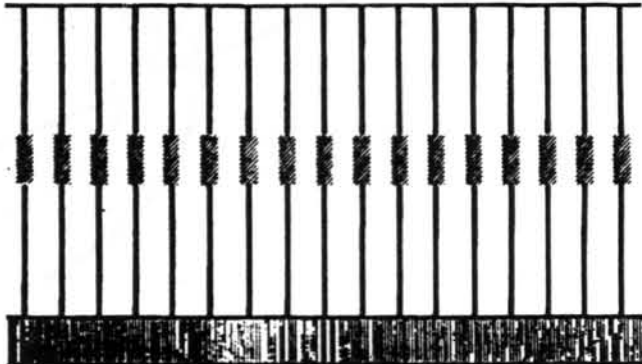
Section 1

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	_____



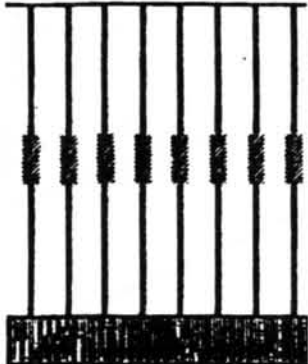
Section 2

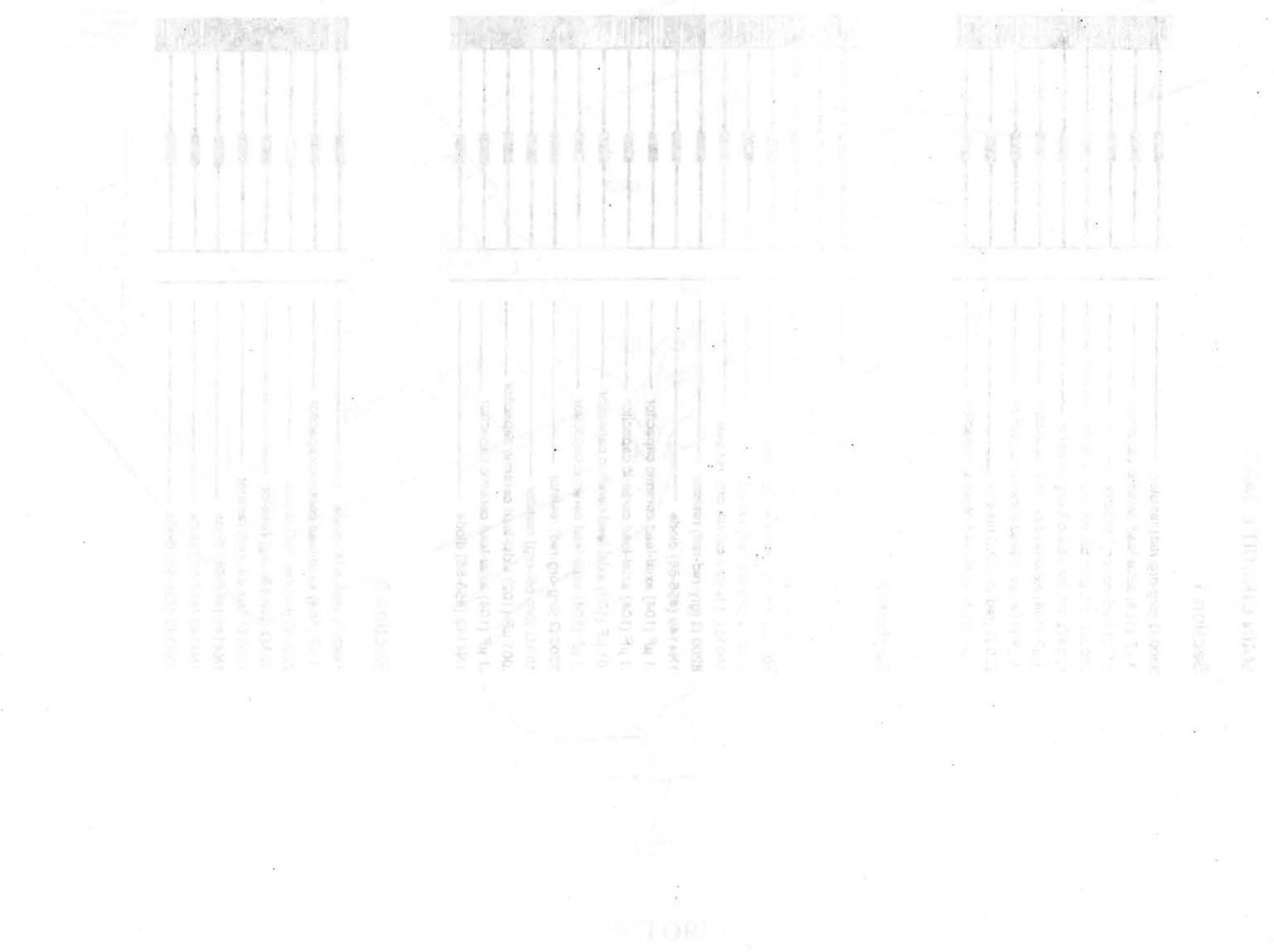
27 kΩ (red-viol-org) resistor	_____
.1 μF (104) axial-lead ceramic capacitor	_____
150 Ω (brn-grn-brn) resistor	_____
100 kΩ, 1% (brn-blk-blk-org) resistor	_____
3300 Ω (org-org-red) resistor	_____
100 kΩ, 1% (brn-blk-blk-org) resistor	_____
8200 Ω (gry-red-red) resistor	_____
1N4149 (#56-56) diode	_____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



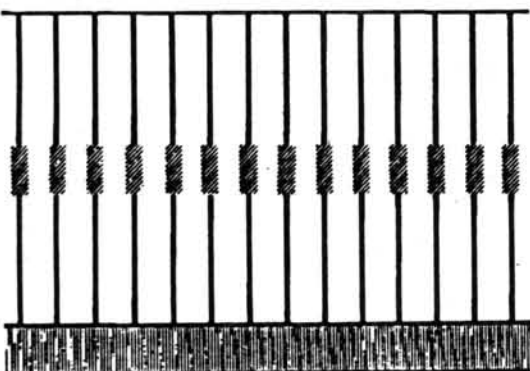
Section 3

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

[illegible]