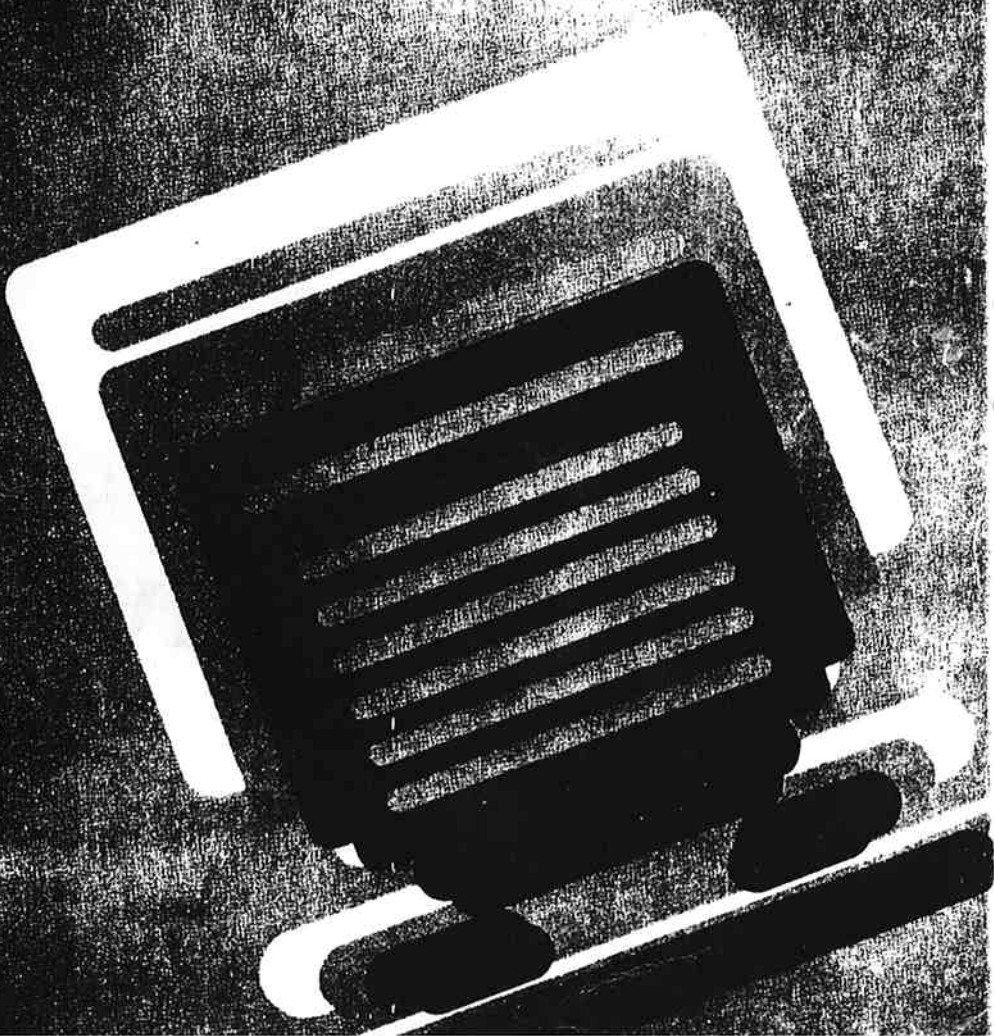
Personal Computer Products, Inc.

APPLI-CARD™

Installation and User's Manual

FOR APPLE II COMPUTERS



APPLI-CARD™ 2.0

Installation and User's Manual

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WARRANTY

Personal Computer Products, Inc. offers a 90 day warranty on the APPLI-CARD. If your APPLI-CARD should fail to operate properly within 90 days from the date of purchase, Personal Computer Products, Inc., will either repair or replace it at no charge. On any request for warranty service, please include the serial number. Please follow these steps in requesting warranty service.

1. Complete the Personal Computer Products, Inc. Warranty Registration Card and return it to Personal Computer Products, Inc. as soon as possible. Once your completed card is received, processing a request for warranty service can be handled promptly.

2. If you believe your APPLI-CARD is defective, you should FIRST call Personal Computer Products, Inc. to obtain a Return Merchandise Authorization (RMA). Merchandise will not be effectively processed without having first obtained an RMA number prior to returning the merchandise.

3. You should then send the APPLI-CARD and its **original** disk, postage prepaid, to Personal Computer Products, Inc. Please be sure your name, return address, and telephone number are enclosed with the APPLI-CARD as well as a complete description of the symptoms observed. Personal Computer Products, Inc. will either repair or replace your APPLI-CARD and disk and return them to you.

Your request for warranty service may be delayed if you do not complete the Warranty Registration Card or if you send your APPLI-CARD directly back to Personal Computer Products, Inc. without having first obtained a Return Merchandise Authorization.

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All screens illustrated in this manual are meant to be representations, not exact duplicates.

The files on your disk are described in more detail in Chapter 2.

YOUR MANUAL This manual tells you how to install the APPLI-CARD and how to take advantage of its advanced features. It also describes the basic CP/M skills that are required to run the CP/M software.

YOUR PRIMER If you want to use the additional CP/M features you now have available, you can learn about them by reading the CP/M Primer Provided as part of your APPLI-CARD package.

YOUR SHIFT MODIFICATION DEVICE Unless your Apple can produce upper- and lowercase characters, you need to install this connector to use the SHIFT key on your Apple keyboard. If you have an Apple II or II Plus, the SMD or an equivalent device must be installed, or you will not be able to use all of the APPLI-CARD's software.

WHAT YOU NEED

In order to take full advantage of the features of your APPLI-CARD, you need the following:

- an Apple II, II Plus, or IIe (not an Apple III)
- two disk drives
- a video monitor

HOW TO USE THIS MANUAL

This manual was designed to be read selectively; You Decide what to read, depending on your needs. The chapters and appendices contain the following information:

- Chapter 1, "Installing APPLI-CARD," provides the instructions you need to install your APPLI-CARD and to get started using your APPLI-CARD.

- Chapter 2, "Overview of CP/M," describes a few important aspects of the CP/M operating system and tells you where you can get more information.

- Chapter 3, "Additional Features for Apple II and II Plus Owners," explains some features that make it possible for you to use the APPLI-CARD without an 80- column card.

- Chapter 4, "Advanced Features: Customizing the APPLI-CARD," defines and describes how to use the Apple function keys, Apple memory as a printer buffer, and the SoftVIDEO driver.

- Chapter 5, "Advanced Features: Modifying Drivers with Your APPLI-CARD," describes the APPLI-CARD drivers and offers instructions for tailoring them to your needs.

- Chapter 6, "Using APPLI-CARD with Apple DOS," explains how to use your APPLI-CARD to transfer files between CP/M and Apple DOS and how to use your APPLI-CARD as a RAM disk for additional memory.

- Appendix A, "Soldering to Activate Your Shift Key," gives additional instructions to Apple II owners who do not have a Keyboard Encoder card. This appendix does not apply to the Apple IIe or most Apple II Plus models.

INTRODUCING APPLI-CARD

PCPI's APPLI-CARD greatly expands the capabilities of your Apple microcomputer. When you install the APPLI-CARD, your Apple becomes two computers. Not only can you continue to use your Apple just as you always have, but you can also run the CP/M operating system. Through your APPLI-CARD and CP/M, you can use the thousands of CP/M-based programs.

Your Apple is versatile; you can add many different types of peripherals to it. Among these, the APPLI-CARD is one of the most powerful additions you can make. Although the APPLI-CARD is designed to be compatible with many peripherals, it does not work with all of them. You should ask your dealer whether the particular combination of devices you have will work with the APPLI-CARD.

WHAT YOU HAVE

You have received a package containing the APPLI-CARD, a disk, an installation manual, a textbook on CP/M, and a shift modification device (SMD).

YOUR APPLI-CARD The APPLI-CARD is a printed circuit board that contains a 6 MHz Z-80B microprocessor and 64K of Random Access Memory (RAM). The APPLI-CARD uses the Apple as an input/output processor only, borrowing the Apple keyboard, monitor (video display), disk drives, and various ports. The APPLI-CARD works with the Apple II, II Plus, and IIe, but not with the Apple III.

YOUR DISK The disk with your APPLI-CARD has files on both sides and is actually two disks in one: one side is labeled **CP/M Disk**, the other side is labeled **Utility Disk**. The "two disks" contain the following files:

CP/M Disk	Utility Disk
ADOSXFER.COM	APLFLPY.DVR
ASM.COM	BUFFER.DVR
CLRPBUF.COM	CONFIGSV.COM
COPYFRMT.COM	DLDRIVER.COM
DDT.COM	DRIVERS
DOSRDSK	ETXBUF.DVR
DRIVERS	FAST2E80.DVR
DUMP.ASM	FUNCTION.COM
DUMP.COM	HIRESIO.DVR
ED.COM	INSTALL.COM
LOAD.COM	SFTVIDEO.DVR
NRDRDSK	PCPICPM
PIP.COM	
STAT.COM	
SUBMIT.COM	
XSUB.COM	

Although it is not listed, the CP/M operating system (version 2.2) is written on both sides of the disk. Notice that each side (or disk) also contains a DRIVERS file used by CP/M to communicate with the devices on your Apple. To start up (boot) your system, use the CP/M Disk for 80- or 40-column screen mode and the Utility Disk for 70-column screen mode. You would only want to use the 70-column mode if your Apple does not have an 80-column card.

- Appendix B, "TroubleShooting Guide," provides answers to the most common questions you may have while performing the tasks described in this manual.

- Appendix C, "Technical Information," contains technical information about the hardware and CP/M operating system. It is intended for the experienced computer user.

- Appendix D, "ASCII Conversion Chart".

Everyone should begin with the installation instructions in Chapter 1 and then read Chapter 2 to learn more about CP/M. If you are using an Apple II or II Plus (or an Apple IIe without an 80-column card), you must also read Chapter 3. (Skip this chapter if you use an Apple IIe with an 80-column card.) Chapters 4, 5, and 6 are optional; read them if you are technically proficient and want to use some of the APPLI-CARD's advanced features.

REFERENCE AIDS The Table of Contents, Index, and cross references provide easy access to the information you need.

The following symbols and conventions have been used throughout this manual:

c -- > n Refer to this chapter (n) in this manual.

c -- > CP/M Refer to the *CP/M Primer.*

CAUTION Caution.

REMEMBER Remember.

RETURN Press the Return Key.

^ The control key (CTRL) on your keyboard, unless specifically referred to as a caret.

TYPE **PIP** This bold text indicates what you should type.

CHAPTER 1: INSTALLATION
INSTALLING APPLI-CARD

This chapter gives complete instructions for installing your APPLI-CARD. Regardless of the Apple model you own, you should read this chapter completely. It describes the following tasks:

- Installing the APPLI-CARD in its slot
- Installing the Shift Modification Device (SMD)
- Reassembling your Apple
- Starting up your system
- Making backup copies of your disk(s)
- Making start-up (boot) disks

TASK 1 - INSTALLING THE APPLI-CARD IN ITS SLOT

CAUTION

Turn off the power to your Apple before installation to avoid damaging the APPLI-CARD and your Apple. Also, turn off the power to all external devices, such as monitors and printers.

Step 1 Remove all cables from the back of the Apple, including the power cord and all removable peripheral cables.

Step 2 Remove the cover from the Apple. Check the peripheral cards to see if they match the arrangement of cards for the Apple IIe illustrated in Figure 1 or the arrangement for other Apple models illustrated in Figure 2. Rearrange the cards if necessary. See the table on page 1-4 for a detailed description of the slot assignments in your Apple.

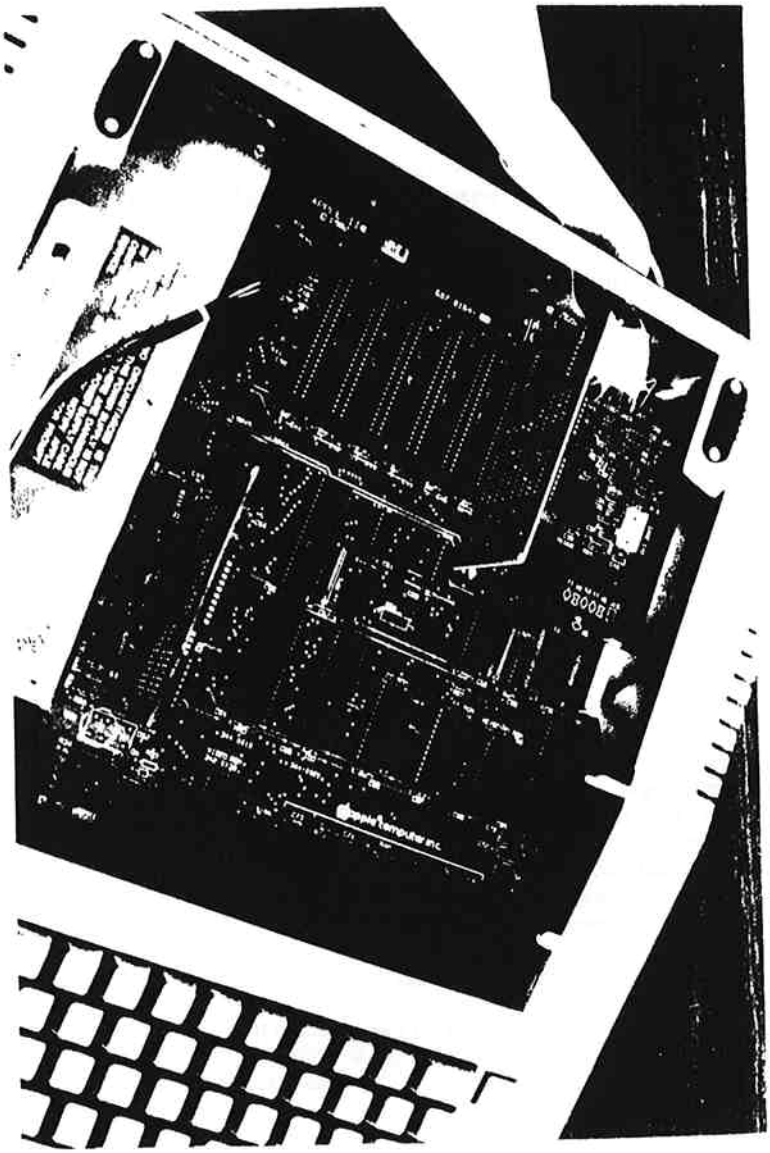

FIGURE 1. APPLE IIE BOARD SLOT LOCATIONS AND THE APPLI-CARD INSTALLATION.

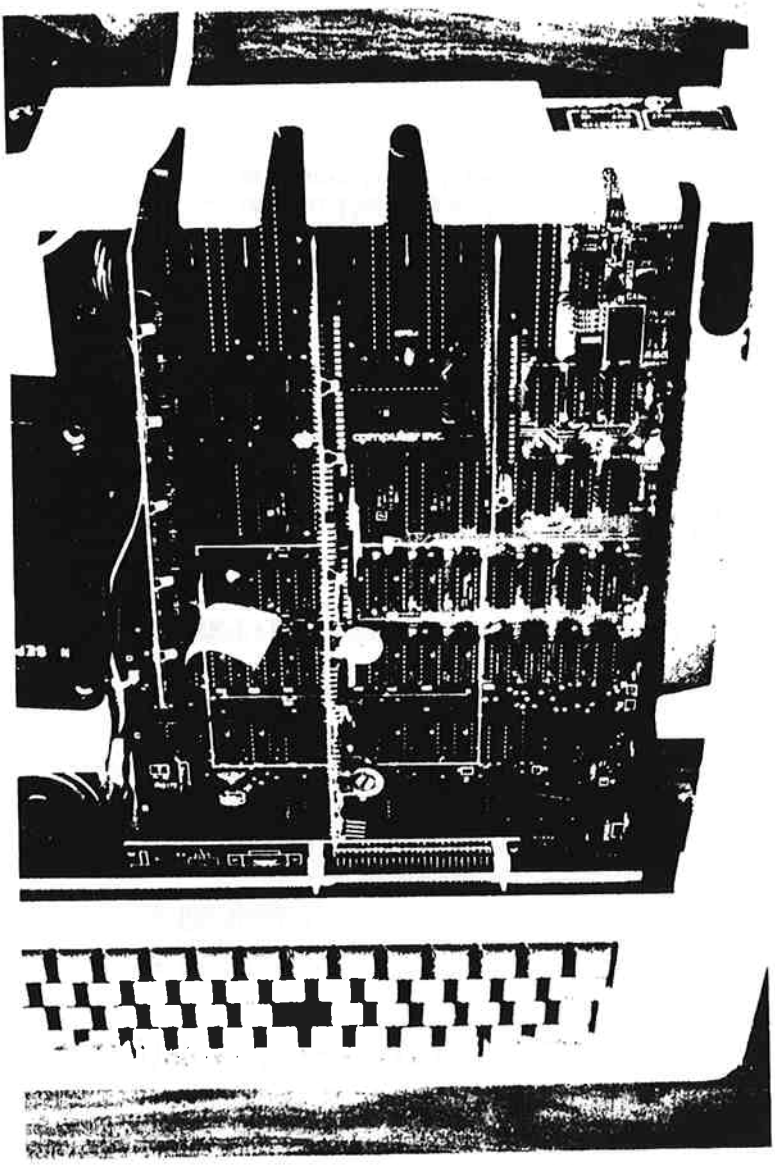

FIGURE 2. APPLE II AND II PLUS BOARD SLOT LOCATIONS AND THE APPLI-CARD INSTALLATION

Step 3 Check that the jumper is properly preinstalled on your APPLI-CARD. It should be connected to the 13th pair of pins from the top of the expansion interface connector, as indicated in Figure 3.

Step 4 Install the APPLI-CARD as shown in Figure 1 or Figure 2 (depending on which type of Apple you have).

Although slot 4 is recommended (with slots 5 and 7 as alternate suggestions), you can install the APPLI-CARD in any slot except 0 and 6.

To make sure the card is firmly in position, gently rock it back and forth as you push it into the slot. The tab located at the front of the card should rest on the main circuit board inside the Apple.

CAUTION

Improper installation of the APPLI-CARD can cause extensive damage to both the APPLI-CARD and your Apple.

SLOT ASSIGNMENTS AND ASSOCIATED CP/M DEVICE NAMES

SLOT	DEVICE NAME	FUNCTION
Auxiliary	ROM/RAM	Reserved for Apple IIe 80-column card. (Apple II and II Plus computers do not contain this slot.)
0	ROM/RAM	Reserved for additional memory cards for the Apple. (The Apple IIe does not contain this slot.)
1	PRINTER	Reserved for the CP/M list device or line printer output (CP/M LST: device). APPLI-CARD CP/M manages this slot as an output-only device.
2	I/O	Reserved for general purpose I/O usage and normally used to communicate with peripheral devices (CP/M RDR: and PUN: devices). It is both an input and an output port. An RS-232C interface, typically used with a telephone modem, would be placed here.

CAUTION

Your APPLI-CARD includes a preinstalled "jumper," which is inserted on the APPLI-CARD's expansion interface connector. The jumper must be in place if your APPLI-CARD is to work properly. If it is not in place you risk damaging your computer. It should be removed only when a RAM Extender board or any other board designed to plug into the expansion interface connector is inserted. The RAM EXTENDER BOARD is available with either 64K or 128K of memory.

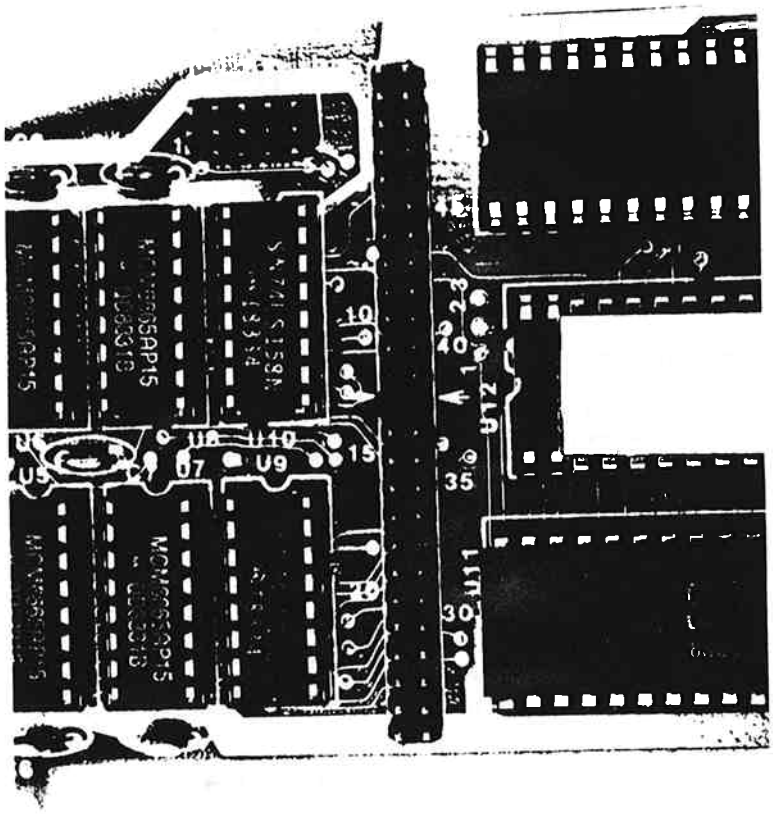

FIGURE 3. EXPANSION BOARD SHOWING LOCATION OF JUMPER

Continued

SLOT ASSIGNMENTS AND ASSOCIATED CP/M DEVICE NAMES

SLOT	DEVICE NAME	FUNCTION
3	CONSOLE	Reserved for an 80-column card or external terminal I/O card. APPLI-CARD CP/M normally uses the Apple screen for video output unless there is a card in slot 3. If there is an 80-column card, APPLI-CARD CP/M manages the Apple monitor in 80-column screen mode. If there is an external terminal card, APPLI-CARD CP/M manages the external terminal that replaces the Apple monitor and keyboard. Refer to your Apple II documentation for more information about 80-column cards.
4,5	DISK/ APPLI-CARD	Reserved for disk drive controller cards (although these slots can be used with other types of peripheral cards). The recommended slot for your APPLI-CARD is either 4 or 5, if these slots are not already in use.
6	BOOT DISK	Reserved for the start-up (boot) disk drive controller card; this card must be in place to run the APPLI-CARD.
7	Unassigned	Has an undefined function and is also suitable for the APPLI-CARD placement. However, the cables from the start-up disk controller card in slot 6 may physically interfere with the placing of the APPLI-CARD in slot 7.

TASK 2 - INSTALLING THE SHIFT MODIFICATION DEVICE (SMD)

REMEMBER

If you have an Apple IIe or if you have already installed a SMD in your Apple II or II Plus, skip this task.

By installing the SMD, you activate the SHIFT key on your Apple. The SHIFT key lets you use all APPLI-CARD software. If you have an older Apple II model that does not have a Keyboard Encoder card, turn to Appendix A for special instructions for installing the SMD.

CAUTION Be sure the power to your Apple is OFF.

Refer to Figure 4 and follow these steps:

Step 1 Turn your Apple around so the keyboard is facing away from you. Remove the cover.

Step 2 Locate the Keyboard Encoder card. It is mounted underneath the keyboard circuit board on the left side as you view the Apple from the rear.

Step 3 Connect the push-pin hook of the SMD to pin 24 (second pin on the left) of the Keyboard Encoder card.

Step 4 Plug the other end of the SMD into the Game I/O socket. (Refer to your Apple manual if you have trouble locating the Keyboard Encoder card or the Game I/O socket.) Make sure the colored dot on the connector is facing towards the front of the Apple.

The plug for the game paddles can be attached to the top of the SMD connector.

TASK 3 - REASSEMBLING YOUR APPLE

To complete the physical installation, follow these steps:

Step 1 Replace the cover.

Step 2 Reinstall all cables.

CAUTION Make sure the power switch is still OFF before reinstalling the power cable to the Apple.

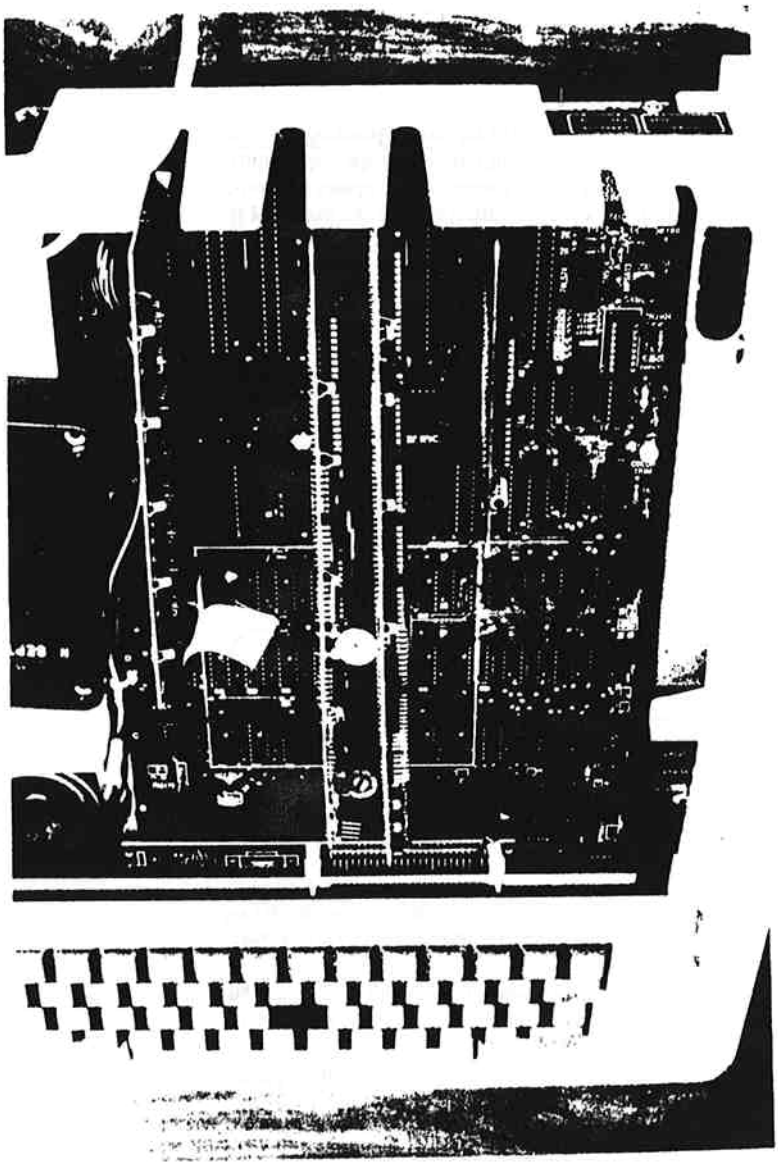

FIGURE 4. KEYBOARD ENCODER CARD SHOWING SMD CONNECTIONS.

TASK 4 - STARTING UP YOUR SYSTEM

Now it's time to use your APPLI-CARD system.

Step 1 Insert your APPLI-CARD disk into drive A. (This is the disk provided with your APPLI-CARD package.)

If you have an 80-column card, insert the CP/M Disk facing up.

If you do not have an 80-column card, insert the Utility Disk facing up.

CP/M refers to a disk drive by a letter instead of a slot drive number. Drive A corresponds to Apple Drive 6,1.

Step 2 Turn your Apple on. The APPLI-CARD CP/M system will automatically load.

Step 1 If you have an older Apple II that doesn't load automatically, type **6** in response to the monitor prompt. Then press **^P** (that is, hold down the CTRL key while you type P) and then press RETURN.

The disk drive will make the normal booting sounds. SEE LOAD DRIVERS followed by this screen:

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35.5K Printer Buffer In Use

CP/M Ver 2.2
(C) Digital Research, Inc.
PCPI Ver 2.0
(C) Personal Computer Products, Inc.

A>
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