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\* THE WILDCARD \*  
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344 East 63 Street, Suite 14-A, New York City, 10021,  
212/355-2860.

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PLEASE READ ME

If you have a Language Card manufactured by Apple Computer please read APPENDIX E (page 36) before continuing.

If you have a Franklin ACE 1000 (not the ACE 100) please read APPENDIX D (page 32) before continuing.

At this time the WILDCARD works with all Apple compatible 16K or greater RAM cards. It is necessary to have the card in slot 0. The WILDCARD will not interfere with any other RAM cards you may have installed.

The WILDCARD will live in any free slot. Make sure that all cables (disk drives, etc.) are not pushing any cards out of position. The WILDCARD can be left in the Apple at all times.

WILDCARD INSTALLATION  
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- 1 : Before attempting to install the WILDCARD in your computer check that all the ICs (integrated circuits - the black chips with silver legs) are all properly seated in their sockets. Do this by firmly, but carefully, pressing on them. This precaution is necessary since the ICs may have become loose in transit. Avoid touching the gold fingers on the WILDCARD's edge.
- 2 : SWITCH OFF THE COMPUTER!
- 3 : Remove the lid and select any vacant slot, other than 0 or 6. Carefully insert the WILDCARD, press firmly, but gently to ensure that good contacts are made - this is essential.
- 4 : The cable attached to the WILDCARD should be led through one of the vertical gaps so that the button may be comfortably reached. Under no circumstances pull this cable.
- 5 : Replace the lid of the computer.
- 6 : Switch your Apple on.
- 7: If the Apple hangs up or fails to work properly, turn it off. Refer to APPENDIX C, page 31.
- 8 : Copy the WILDCARD SYSTEM DISC using any standard copy program. Copy the [entire] disc, not just the files on the disc. From now on use this copy and keep the original disc safe.
- 9 : Read the WILDCARD manual.
- 10: You are now ready to use the WILDCARD.

You should read this manual before using the WILDCARD. If you simply can't wait and have to start right away, follow the directions in the section entitled "A SIMPLE EXAMPLE", page (7).

It is very important that you follow the installation instructions. Even if you install cards for a living it doesn't hurt to read them. EAST SIDE SOFTWARE can take no liability if you install the card wrong, i.e., with the Apple's power on, etc. Nor will we warranty any card that has been improperly installed. So, please take the time to make sure it's done right.

While you're at it, make a couple of copies of the WILDCARD SYSTEM DISC. Make sure you copy the entire disc, not just the files. Use COPYA on your system master or a similar program. The reason for this is that the WILDCARD disc has a 16K slave DOS which has been modified for faster booting. After you have made the backups put the master in a safe place.

This manual is divided into several sections. First is a simple, step-by-step example. The various features of the WILDCARD are then outlined and their uses demonstrated. Finally, there is a section of tips for using the card.

If you have any suggestions or tips, please feel free to let us know.

## THE WILDCARD : WHAT IT IS

The WILDCARD is an interface card which, when installed in your Apple, will allow you to make a backup of the software currently executing. This means that you can backup most software which does not reaccess the [program] disc. There are some restrictions; these are described in the section WILDCARD TURNKEY SYSTEMS under RAM AUTOBOOT (64K) and under 64K BACKUPS.

## THE WILDCARD : WHAT YOU GET

You should have received an interface card with a cable and pushbutton, this manual and a disc marked 'WILDCARD SOFTWARE'. If any part is missing contact your supplier or EAST SIDE SOFTWARE CO.

## THE WILDCARD : WHAT YOU NEED

In order to use the WILDCARD you need the following :-

Apple ][ or Apple ][+ with 48K of RAM and Applesoft in [ROM on the motherboard].

A RAM card with 16K of RAM or more in slot 0.

Disc ][ disc drive with DOS 3.3 in slot 6.

You should also have a few empty discs, formatted with DOS 3.3. These will be used to store files, temporarily, when you use certain features of the WILDCARD. You will also need blank discs for the backup copies.

In order to use copies made with the WILDCARD, the WILDCARD itself is not necessary. In many cases it is possible to run copies without a RAM card.

## THE WILDCARD : THEORY OF OPERATION

When you have a WILDCARD installed in your Apple you can use it to capture a copy of the software currently executing. This happens when you push the button on the cable attached to the WILDCARD. The program is interrupted and another one begun. This other program resides in an EPROM on the WILDCARD. In order to make room for this program part of the original program is moved from the ordinary 48K of your Apple to the RAM in your RAM card.

The software on the EPROM is then moved to the now vacant space and it takes control of the Apple. What happens next is up to the user, but we have provided software on the WILDCARD SYSTEM DISC to allow you to make back ups of the original program.

This process of switching from one program to another without creating a mess is technically complex. So complex in fact that it may occasionally go awry. The result is a confused and hung Apple. If this ever happens to you: switch off your Apple, reboot your software and restart.

## THE WILDCARD : IMPORTANT NOTES

If your WILDCARD fails to operate correctly, switch off your Apple, remove the lid and check that the WILDCARD is firmly located in its slot. This is very important since a cable runs from the WILDCARD which you may accidentally pull.

\*\*\* NEVER PULL THE CABLE \*\*\*

If you pull the cable when your Apple is switched on the Universe will end!

## A SIMPLE EXAMPLE

This example describes how to use the WILDCARD. In order to follow this example you should have installed your WILDCARD as described on page 3.

Turn on your Apple and write the following small BASIC program :-

```
]NEW  
]1 PRINT "HELLO" : PRINT : GOTO 1  
]RUN
```

If you have done this correctly the word 'HELLO' is being repeatedly printed on your screen. Now press the pushbutton at the end of the WILDCARD cable. The screen display will freeze. Next hit the RETURN key. The display will change to show :-

```
WILDCARD OPERATIONAL  
===== (48 K) =====
```

```
OPTIONS : BOOT  
          CLEAR AND BOOT  
          RESTART  
          MONITOR
```

```
SELECT :
```

This is the initial menu; its functions are detailed in the section WHAT TO DO NEXT.

If you want to try the RESTART feature type R. This will restart the program running exactly where you had hit the button. Note that this function will only work on 48K programs. The restart also returns you to the primary text screen. This will cause interesting screen effects if you restart a graphics program.

Two uses of this feature are to (1) restart the program to test patches after using the monitor option and (2) restart the program to make the backup from a different point in the program. For now, however, return to the initial menu (assuming you did try the R function) by pushing the WILDCARD button and hitting return.

Put your copy of the WILDCARD SYSTEM DISC in drive 1 then hit B (for BOOT). The disc drive's red light will glow and the disc will boot.

After a few seconds another display will appear:

```
WILDCARD SYSTEM DISC
===== (48K DUMP) =====
```

OPTIONS : SAVE

LOAD

RESTART

CLEAR AND BOOT

TURNKEY SYSTEMS

UTILITIES

OPTIONS

SELECT :

For this example all we want to do is to create a turnkey (autobooting) disc that will restore our original program. Hit T (for TURNKEY SYSTEMS). A message to remind you to use the WILDCARD SYSTEM DISC appears :-

```
INSERT WILDCARD SYSTEM DISC
[ESC] = ABORT   [RETURN] = CONTINUE :
```

The SYSTEM DISC is still in your drive so hit RETURN. another display will appear :-

```
WILDCARD TURNKEY SYSTEMS
===== (48K) =====
```

OPTIONS : AUTOBOOT (48K)

RAM AUTOBOOT (64K)

WILDCARD MAIN MENU

SELECT :



Enter A and soon another message will be displayed :-

INSERT WILDCARD SYSTEM DISC  
[ESC] = ABORT [RETURN] = AUTOBOOT :

If you have been following the example carefully the WILDCARD disc is still in your drive, so hit RETURN. The disc will briefly whirl while another program is loaded:

AUTOBOOT CREATE (48K)  
===== (48K) =====

PLACE BLANK DISC IN DRIVE 1  
[ESC] = ABORT [RETURN] = CREATE :

Now remove the WILDCARD SYSTEM DISC and replace it with a blank or otherwise unimportant disc. Hit RETURN. Any information stored on this disc will be overwritten. A message appears on the screen while a copy of the software is being made:

```
*****  
*                                     *  
*   CREATING DISC                   *  
*                                     *  
*****
```

When the copy has been made a final message appears :-

[B] = BOOT [RETURN] = TURNKEY :

Hit the B key or turn the Apple off and on again. The disc will boot and a message telling you that the program is loading will appear. The original program will be restored and continue executing at the point where you pressed the button.

This example outlines the basic procedure for copying most software. What follows expands on this example and allows you other options within this framework. Programs copied in this way require the RAM card to be restarted.

## WHAT HAPPENS WHEN YOU PUSH THE BUTTON

When you press the button the Apple's microprocessor is interrupted and whatever the software in memory was doing is halted. A special program installed in the WILDCARD now waits for the keyboard to be touched. You should push only one of two keys, either the RETURN key (for a 48K save) or the R key (to save the RAM card's 16K for a 64K save). In fact, hitting any key will produce a result, but you should restrict yourself to R or RETURN.

If you hit the RETURN key the contents of the low 16K of your Apple's memory is moved to the RAM card. Thus the contents of all 48K of memory are preserved. The bottom 16K has been moved; the remaining 32K is in its original position.

If you hit the R key the contents of the RAM card are preserved.

In either case the WILDCARD moves its own program into the low 16K of your Apple's memory. It also:

- switches text screen 1 on;
- keeps a record of the A, X, Y and S registers;
- remembers whether you saved 48K or 16K.

The WILDCARD then responds by displaying the following:-

```
WILDCARD OPERATIONAL
====(48K SAVE)=====
```

```
OPTIONS : BOOT
```

```
MONITOR
```

```
RESTART
```

```
CLEAR AND BOOT
```

```
SELECT :
```

## WHAT TO DO NEXT

This depends on what you want to do. In general you will hit the B key (BOOT) and boot a copy of the WILDCARD SYSTEM DISC. The function of all the keys is described below.

### B = BOOT

If you hit the B key the disc in drive 1, slot 6 of your Apple is booted. Usually this will be a copy of the WILDCARD SYSTEM DISC. If you boot another disc it will probably destroy the memory contents. (The WILDCARD SYSTEM DISC is a 16K slave disc and only affects the low 16K of memory.)

### M = MONITOR

If you select this option the Apple's speaker will beep and you will be dropped into the Apple monitor program. As is usual the prompt will be a '\*'. If you choose this command we assume you know what you are doing. You can still return to the menu you have just left by typing CTRL-Y RETURN.

### R = RESTART

Pressing the R key allows you to restart the software that was executing when you pressed the button. [This is only [true if you saved a 48K program]. Some subtle differences may arise at this point if you do restart some software. For example, the wrong screen mode may be set, text instead of graphics, etc.; the motherboard ROM will be switched in whereas perhaps the software was using the RAM card. How to cope with these differences is dealt with in the section entitled OPTIONS.

### C = CLEAR AND BOOT

This has a similar effect as B (BOOT), except that most of memory is wiped clear first. If you wish to copy a program using the RAM card, i.e., a 64K program, the WILDCARD reloading software has to reside somewhere. It can only do this if it can find some free space in the original program. This free space is most easily recognized by the WILDCARD software by using CLEAR AND BOOT to boot the original program.

You should use this option if you want to make backups which will run on 48K machines. The easiest way is to push the WILDCARD button and hit return before booting the original program, then booting your disc with the C option.

## WILDCARD SYSTEM DISC

When you boot the WILDCARD SYSTEM DISC you are presented with the main menu. Make your selection by pressing a single key. Hitting RETURN is not required except to confirm your choice in some cases. Here is a copy of the menu :-

WILDCARD SYSTEM DISC  
=====(48K DUMP)=====

OPTIONS : SAVE  
  
LOAD  
  
RESTART  
  
CLEAR AND BOOT  
  
TURNKEY SYSTEMS  
  
UTILITIES  
  
OPTIONS

SELECT :

These seven options are described on the following pages. Most of the options will allow you to hit ESC to abort. This will return you to the main menu.

Under the message 'WILDCARD SYSTEM DISC' is a note of the memory size that has been retained. This will usually be 48K or 16K depending on which key you pressed after pushing the button (see page 10). If you have booted the disc to make use of its facilities without having booted through the WILDCARD, the note will probably indicate 00K.

## OPTIONS

When the program you have copied is restarted the normal state is for the Apple to display the primary text screen. The program, however, may require some other screen to be displayed; for example, arcade type games display on a graphics screen. Also, some programs require that interface cards are initialized, for example, an 80-column card or a modem. When a 64K program is copied it may need the RAM card selected, or perhaps the ROMS on the Apple motherboard. It all depends when you hit the WILDCARD button.

The options are designed to allow you to set up these functions manually in a way which the WILDCARD cannot do on its own. After pressing O the following prompts appear, one after the other. Possible responses and their meanings are also shown. Hitting RETURN at the bottom will return you to the main menu. If you don't want to enter an option then just enter a RETURN for that line.

TEXT.....GRAPHICS ( ) : T=text G=graphics  
ALL.....MIXED ( ) : A=all text or graphics  
M=mixed text and graphics  
PRIMARY...SECONDARY ( ) : P=text screen 1 or HGR  
S=text screen 2 or HGR2  
LO-RES....HI-RES ( ) : L=low resolution graphics  
H=high resolution graphics  
SET SLOTS ( ) : Up to two peripheral cards may  
be initialized by typing their  
slot numbers.  
SET BANK (Ø) : Ø=select motherboard  
1=select RAM card bank 1  
2=select RAM card bank 2

The AUTOBOOT (48K) option ignores the value in the SET BANK option. If you require the RAM card to be selected for a 64K program, then it is usual to select bank 2.

If you have to guess on any of the options, you can use the LOAD and SAVE options, described below, to load the program back into memory and try again. In that case the OPTIONS screen will also display the previously selected choice.

## TURNKEY SYSTEMS

The TURNKEY SYSTEMS option allows you to create discs which when booted will automatically restart the program which you have backed up. Type T and the following message appears:

```
INSERT WILDCARD SYSTEM DISC
[ESC] = ABORT   [RETURN] = TURNKEY
```

Make sure that the WILDCARD SYSTEM DISC is in drive 1 and press RETURN. The TURNKEY program will be loaded from the disc. Its use is described in the section WILDCARD TURNKEY SYSTEMS.

## SAVE

This function will save the contents of memory to a standard DOS disc. After typing S you will see the message

```
INSERT DISC FOR MEMORY DUMP
[ESC] = ABORT   [RETURN] = CONTINUE
```

Place a standard DOS disc in drive 1 and press RETURN. A catalog of the disc is displayed and you are asked to specify the name of the file you wish to save. Type in a name and press RETURN. The memory contents will be saved to disc. Note that you should not enter the file name extensions, i.e., .1, .2, etc. The software will do this automatically.

If you had captured a 48K dump (i.e., the message at the top of the screen says 48K), then the save to disc will be of the bottom 48K of memory.

The WILDCARD will also save other information necessary to restart the program. The only exception to this is 16K saves. When you save a 16K memory image, then only the memory image is saved to disc. No other information will be saved.

If you have used OPTIONS or UTILITIES to make changes to a file, use SAVE to rewrite the file back to the disc.

## LOAD

After hitting L you are presented with

INSERT DISC FOR MEMORY DUMP  
[ESC] = ABORT     [RETURN] = CONTINUE

Place the disc with the saved memory in drive 1 and press RETURN. A catalog of the disc is given and you are asked to name the file to be loaded. Type in the name of the file (ignoring the .#) and press RETURN.

The memory is loaded in the Apple together with the additional information required to restart the program. The 48K dump is automatically selected; there is no way to reload the 16K dump.

This command allows a program to be reloaded for further modifications. This can be done using either the UTILITIES or OPTIONS selection from the main menu. When completed, SAVE puts the program back on the disc.

## CLEAR AND BOOT

This option clears most of the Apple's memory and then boots the disc drive in slot 6. After pressing 'C' for CLEAR AND BOOT you are given an opportunity to abort:

[ESC] = ABORT     [RETURN] = BOOT :

Insert the disc to be booted in drive 1 and press RETURN.

CLEAR AND BOOT is used to make a backup of software which uses the RAM card, i.e., a 64K program. It should also be used to boot 48K programs that you would like to run without the RAM card. See the section titled COMPRESSING PROGRAMS.

Clearing the memory allows for the easy identification of unused memory. This is necessary to allow the WILDCARD software to compress the program to find room for the machine language restart program. The restart program returns the Apple to the state it was in when you hit the WILDCARD button.

## RESTART

This option allows you to attempt to restart the program that you interrupted with the WILDCARD. It will only work with 48K programs since the RAM card contents are modified by the WILDCARD. This feature is useful if you have made changes using UTILITIES and want to try them before making a backup.

In order to use this option you must have the 48K memory image loaded into memory. Before restarting the program the following appears:

[ESC] = ABORT      [RETURN] = RESTART :

If you press RETURN the WILDCARD software will attempt to restart your software where it left off. If you have used the UTILITIES option to carry out changes this may alter the behavior of your software.

Also be aware that you will need to use OPTIONS if the program needs a graphics screen or a card initialized. See the section titled OPTIONS.



## UTILITIES

This section is mainly for machine language programmers. If you are not experienced in programming then you will probably not need this section.

If you select UTILITIES the screen will change to show a display similar to the following:

SCREEN :-	MEANING :-
A = 45	A register
X = 80	X register
Y = 00	Y register
P = 00 N=0 V=0 B=0 D=0 I=0 Z=0 C=0	P register & flags
S = F1 RETURN ADDRESSES : FD1E	S register and return
	addresses inferred.
(\$36) : FDF0	Output hook.
(\$38) : FD1B	Input hook.
(\$3D0): FFFF	DOS vector.
(\$3D9): FFFF	RWTS vector.
(\$3F2): FFFF	RESET vector.
\$0428 : A0 A0 CC CF C3 CA D3 CD	Contents of 8 bytes.
TEXT : L O C K S M	Displayed as text.
?	

You now have access to the copy of the entire 48K memory image. Experienced programmers will be able to alter the memory's contents to good effect; others should leave well enough alone.

### EXAMPLE

A register symbol (A, X, Y, P, S) followed by a '>' and some hexadecimal value alters that register to that value. A>32

A hexadecimal value (followed by RETURN) displays the contents of that location and the next seven bytes. B7B5

A hexadecimal value followed by a ':' followed by a another hexadecimal number changes the contents of that location. 3F4:45

One note on the RESET vector: The display does not show the power-up byte (\$3F4). If you modify the RESET vector be sure to modify \$3F4. This process is outlined in detail on page 37 of the Apple II Reference Manual.

Hitting RETURN returns you to the main menu.

## WILDCARD TURNKEY SYSTEMS

This section of the WILDCARD software allows you to create discs which, when booted, will automatically restart the program which you backed up with the WILDCARD. To use WILDCARD TURNKEY SYSTEMS, press T from the main menu as already described. The message at the top of the screen changes to

WILDCARD TURNKEY SYSTEMS  
===== (48K) =====

The 48K may be 16K or 00K, but does not change from that displayed at the main menu. Below this message are displayed the options:

OPTIONS : AUTOBOOT (48K)  
          RAM AUTOBOOT (64K)  
          WILDCARD MAIN MENU

SELECT :

To select any option type its first letter. The options are described in detail below.

### WILDCARD MAIN MENU

This simply returns you to the WILDCARD main menu. After hitting W the following will appear:

INSERT WILDCARD SYSTEM DISC  
[ESC] = ABORT    [RETURN] = CONTINUE

You can hit ESC to return to the TURNKEY menu, or place the WILDCARD SYSTEM DISC in drive 1 and press RETURN to go to the main menu.

## AUTOBOOT (48K)

This option creates a disc which, when booted, automatically restarts a 48K program (i.e., one which does not use the RAM card). The program placed on the disc is the one currently in the Apple; therefore, you must either have loaded it from the main menu using the LOAD function or captured it by pressing the WILDCARD button.

In both cases the message at the top of the screen must say (48K) or the command will be ignored. The disc created requires the RAM card to be installed to restart the program.

When you press A the message

```
INSERT WILDCARD SYSTEM DISC
[ESC] = ABORT   [RETURN] = AUTOBOOT
```

appears. ESC returns you to the TURNKEY menu. Otherwise hit RETURN and the message at the top of the screen becomes

```
AUTOBOOT CREATE (48K)
***** (48K)*****
```

```
PLACE BLANK DISC IN DRIVE 1
[ESC] = ABORT   [RETURN] = CREATE
```

After removing the WILDCARD SYSTEM DISC and replacing it with a blank or unwanted disc hit RETURN. This disc will be initialized and a set of programs saved which, on booting, will restart the 48K software. When this process is complete (after about a minute) you are given the option of returning to the TURNKEY menu or booting a disc in drive 1.

This disc is a standard DOS 3.3 disc. The DOS image is a 16K slave. This is required; if you copy this disc the whole disc must be copied, not just the files. The COPYA program on the Apple SYSTEM MASTER disc may be used.

The greetings program is called HELLO. When booted it displays the message 'PROGRAM LOADING'. This BASIC program may be modified to display any message you wish, but do not change any other part of the program.

## RAM AUTOBOOT (64K)

This option performs two functions. You can use it to create a disc which, when booted, restarts a 64K program (i.e., one which requires the RAM card). The second use is to create discs which will restart a 48K program without a RAM card installed. In both cases you must have a RAM card to create the disc.

To perform these functions the WILDCARD software compresses the memory contents. The disc creation is only successful if the memory can be compressed sufficiently. To aid this you should boot the original program, [before] copying, using the CLEAR AND BOOT function of the main menu.

To use the RAM AUTOBOOT function you must first have saved the program to be backed up onto a disc by either using the SAVE function or the AUTOBOOT (48K) option. For a 64K program you must have executed two saves, a 48K save and a 16K save. See the section 64K BACKUPS.

For a 48K program the 16K save is omitted. The WILDCARD software will automatically recognize whether the 16K save exists and will create a 64K or 48K autoboot as necessary.

After hitting R from the TURNKEY SYSTEMS menu a message warns you of the requirements (you will not have the .3 file for 48K), and you should then press RETURN after inserting the WILDCARD SYSTEM DISC. The following appears:

### WILDCARD RAMBOOT SYSTEMS \*\*\*\*\*

OPTIONS : 1 DRIVE COPY  
          2 DRIVE COPY

          WILDCARD MAIN MENU

          SELECT :

As usual, press the first key of each option to activate that option. WILDCARD MAIN MENU will return you to the main menu. 1 and 2 are used to produce the autoboot disc on single and twin drive systems respectively. Single drive actions are the same as twin drive, except that at intervals you are prompted to insert the correct disc into the drive.

Assuming two disc drives, press 1 (press 2 for a 2 drive system). You will be asked to place the disc containing the memory image into drive 1. Do so and press RETURN. A catalog of the disc is displayed and you must type in the name of the program you wish to copy. Ignore the .X, .0, .1, .2 and .3; just type in the main file name (usually PROGRAM) and press RETURN.

The disc drive will whirl for a while. You will then be asked to place a blank disc in drive 1 (or 2 for a 2 drive system) and press RETURN. This [second] disc will be turned into the autobooting disc.

If you were copying a 64K piece of software, the disc, when booted, will require a RAM card. If the program was 48K, then the RAM card is unnecessary. In both cases a message saying 'DISC CREATED' is displayed. If the compression of data was insufficient to allow creation of the disc the message 'COPY UNSUCCESSFUL' is displayed.

After the RAMBOOT software has finished you are given 2 options: returning to the main menu, which requires the WILDCARD SYSTEM DISC to be in drive 1; or placing any disc in drive 1 and booting it.

This page briefly outlines the steps in producing a backup of a 48K program. To do this you will need the WILDCARD, a copy of the WILDCARD SYSTEM DISC and a blank disc.

The first step is to decide when to copy. Generally the best point is at the main menu of a program, or immediately after the program has booted. Look at the screen and try to decide which screen is in use. This is usually obvious; business programs tend to use the text screen, arcade games employ the hi-res screen and both tend to use the primary page.

If the program has mixed text and graphics, check to see if the text looks like normal Apple text. Many programs with graphics also use text that is not normal Apple text but created graphically. This would [not] be considered mixed text and graphics but rather all graphics.

Load the program normally or, if you want to try to make a backup that runs without a RAM card, push the WILDCARD button. Hit RETURN and push C for CLEAR AND BOOT.

When the program is up and running, push the WILDCARD button and hit RETURN. The message 'WILDCARD OPERATIONAL' will now appear along with the initial menu.

Remove the program disc and put the WILDCARD SYSTEM DISC in the drive. Press B to boot the disc. When the main menu is displayed you must make a decision: was the program's screen display, when you stopped it, the ordinary text screen or was it a graphics screen? If it wasn't all text, use the O for OPTIONS and set up the screen display correctly. See the section titled OPTIONS.

Now use the TURNKEY SYSTEMS option and then the AUTOBOOT (48K) option. Follow the screen prompting and insert a blank or other erasable disc into drive 1 when prompted. After hitting RETURN, the WILDCARD software will initialize the disc, write the DOS and all the necessary files, including the 48K memory image. This takes approximately 1 1/2 minutes.

When the backup is done, you can either boot the disc by pressing B or return to the WILDCARD TURNKEY SYSTEMS menu.

You're all done!

## COMPRESSING BACKUPS

The WILDCARD normally produces a 48K autobooting disc which requires a 16K RAM card for booting. This is because our restart software needs space to reside. Normally, this program is in the RAM card. If the original program can be compressed then we can fit our software inside of it, and you won't need the RAM card.

The WILDCARD software does this by looking for 256 byte chunks that are all the same value. If it finds enough of them then it can create the backup. The CLEAR AND BOOT function aids in this task. It clears most of the Apple's memory before loading a program. This leaves any untouched areas marked for the compression routines. If enough space cannot be found then the backup will boot but it will still require 64K of memory.

You can compress an existing WILDCARD backup. Your chances for successful compression are greater if you booted the [original] program with CLEAR AND BOOT before you made the WILDCARD backup.

To compress an existing 48K WILDCARD backup, boot the WILDCARD SYSTEM DISC. When you get the menu, choose T for TURNKEY SYSTEMS. At the next menu choose RAM AUTOBOOT (64K) by pressing R. When prompted, select 1 or 2 drive copy depending on the number of drives in your system.

You will be asked to remove the WILDCARD disc and insert a disc for memory dump. Insert the backup disc you wish to compress. Make sure the disc drive door is closed and hit RETURN. A catalog of the disc is presented and you are asked to choose the name of the program you wish to copy. The disc will likely contain several files named PROGRAM.# (where # stands for a number from 0 to 2).

Type in the name of the file without including the '.#'. In most cases this will be PROGRAM.

If you have 2 drives, insert a blank or otherwise unneeded disc into drive 2. This disc will be erased completely and become the compressed autobooting backup. The original backup will remain unchanged. If you have 1 drive then you will be prompted when to insert the blank disc into drive 1.

After about 1 1/2 minutes the light on the disc drive will extinguish and you will get one of 2 messages. If it says 'COPY UNSUCCESSFUL' then the software was unable to be compressed sufficiently and it will not boot. The original backup will still run in a 64K system.

If you get the 'DISC CREATED' message, then the second disc is a compressed version of the software and will boot on a 48K system. The original backup will still boot on a 64K machine.

If you want to compress a program the first time you back it up, without first creating an uncompressed autoboot version, you will need two discs. One should be blank or erasable and one should be a DOS 3.3 formatted disc without any files on it, except perhaps the usual small "HELLO" program.

The first step is to turn the Apple on but without any disc in the disc drive. After the Apple beeps, push the WILDCARD button and hit RETURN. The disc drive light will still be glowing. Insert the disc you wish to back up into the drive. Hit C for CLEAR AND BOOT and the program will now load.

When the program is up and running and at the location where you want to make the back up push the WILDCARD button and hit RETURN. Remove the program disc and insert the WILDCARD SYSTEM DISC. Hit B to boot.

If you need to change any of the options as described in the OPTIONS section of the manual, select O from the main menu. Similarly, if you are going to use the UTILITIES, do so now.

When you are done with the OPTIONS and/or the UTILITIES, select S from the main menu. You will be asked to insert the disc for memory dump. Insert the formatted disc and hit RETURN.

A catalog of the disc is now shown and you are asked to enter a program name. Enter a name (for example, we use PROGRAM) and hit RETURN. The software automatically adds the '.#'.

The disc drive will now start up and your files will be written to the disc. It will also contain the information needed to start the program. Note, however, that this disc [will not] autoboot.

Return to the main menu by following the prompts. Select the TURNKEY SYSTEMS option. Select R from the TURNKEY SYSTEMS menu. From now the procedure is the same as in the previous section. When asked to insert disc for memory dump, insert the disc containing the files created in the paragraph above.

The procedure is now completely the same as above. Note that although the disc containing the memory dump isn't autobooting, the second disc containing the compressed files is, and will also boot somewhat faster than normal.



## 64K BACKUPS

This is a 2 stage process and is also subject to the ability of the WILDCARD software to do data compression. If successful, you will have a 64K backup which may even load faster than the original!

You will be loading the original program twice, once to save the bottom 48K and the second time to save the RAM card 16K. This means that you [must] push the WILDCARD button in the same place both times. Choose this place with care. The best place is where the program is waiting for input of some sort. This can be either a keyboard or game paddle input.

You will need 2 discs. One should be blank or erasable. The other should be initialized with DOS 3.3 but contain few or no files. Below is the step-by-step procedure.

1. Turn on the Apple and after it beeps, hit the WILDCARD button and then RETURN.
2. Insert the program to be backed up in the disc drive. Note that the drive light will still be glowing.
3. Hit C for CLEAR AND BOOT. The program will now load normally.
4. At the location you have selected, push the WILDCARD button and hit RETURN.
5. Remove the program disc and insert the WILDCARD SYSTEM DISC. Push B to boot.
6. As outlined in previous sections of this manual, use the OPTIONS and UTILITIES features as desired. You will at least need to select the BANK in the OPTIONS feature. See the section titled OPTIONS.
7. Select the SAVE option and when prompted insert the initialized disc in the drive and hit RETURN.
8. Enter a filename, i.e., 'PROGRAM' and hit RETURN.
9. Remove the disc when done and insert the original program disc.
10. Push the WILDCARD button, hit RETURN and select the CLEAR AND BOOT function.

11. When the program has loaded and is in the same place as the first time, hit the WILDCARD button. [DO NOT HIT [RETURN]]. This time hit R.
12. Again, remove the program disc and insert the WILDCARD SYSTEM DISC. Push B to boot.
13. We are now just going to save the RAM card 16K. The OPTIONS or UTILITIES functions cannot be used.
14. Select the SAVE option and when prompted insert the initialized disc, now containing the bottom 48K, into the disc drive.
15. After hitting RETURN you will be shown a catalog. Type in the same name as you entered in step 8. Do not add the '.' or the number, as this will be done automatically.
16. When the disc drive light goes out, follow the prompts back to the main menu. Note that you will have to insert the WILDCARD SYSTEM DISC into the drive.
17. From the main menu, select T for TURNKEY SYSTEMS.
18. From the TURNKEY menu choose RAM AUTOBOOT (64K).
19. Select 1 or 2 drive copy and insert the disc containing the memory files into drive 1. Hit RETURN.
20. The disc catalog will be displayed. You should now enter the same file name as in steps 8 and 15.
21. If you have specified a 2 drive copy then you will be asked to insert a blank disc in drive 2. If you are doing a 1 drive copy then you will be asked to swap discs after a short interval. At that point insert a blank disc in drive 1.
22. If you are doing a 1 drive copy you will be asked to swap discs one more time.
23. When the system is done you will get one of 2 messages. If the message is DISC CREATED then you have created the backup and can boot it normally. If the message is COPY UNSUCCESSFUL then the software was unable to be compressed enough. The disc will not boot correctly.

## MULTI-ACCESS DISCS

Although the WILDCARD is meant for programs that load all at once, it can be used to backup some multi-access discs. There are basically 2 techniques. One is to copy the first program module with the WILDCARD then disassemble the unprotected files. This process requires experience in machine language, Applesoft and DOS. It is also beyond the scope of this manual. If you do feel confident enough to try it then we recommend that you study the books listed in Appendix B.

The second technique is actually a fairly simple trick. Most disc protection schemes heavily protect the boot section of the disc, while leaving the actual program files lightly protected. This technique is a two step process and requires one of the disc "nibble" or "bit" copiers. We recommend LOCKSMITH by Omega Microware.

The first step is to make a backup of the original disc with LOCKSMITH. It pays to see if this copy works. You never know! Put this copy aside, and load up the original program. Now, make a regular WILDCARD backup of this part of the program. Note that we are copying [after] the protected boot code.

Boot up the WILDCARD backup and, when it is up and running, replace the WILDCARD copy with the copy made by LOCKSMITH. If the program runs from here on then you have a 2 stage backup. The WILDCARD backup is used as a "boot" disc and the LOCKSMITH copy is used as a program disc.

You may want to copy the WILDCARD backup onto the back side of the disc copied by LOCKSMITH. You will have to punch a notch on the other side of the disc opposite the one already on the disc. Remember to copy the entire WILDCARD backup, not just the files. The COPYA program on the Apple SYSTEM MASTER is a good program for this purpose.

Note that using the back of a single sided disc is risky, as it most likely has not been tested or certified. It may have bad areas that will not hold data. Try it anyway; it may work. If it doesn't you can always use the two discs.

## APPENDIX A

Presented here are some memory locations on the Apple. These can be used when you are making changes with the UTILITIES feature. This list is hardly complete and you can get more information from the Apple II REFERENCE MANUAL and the [Apple DOS MANUAL]. Also highly recommended is [Beneath Apple [DOS] and [The Apple Monitors Peeled]]. See Appendix B for these and other books.

The list below is set up as follows:

LOCATION refers to a location in the Apple's memory.  
 NAME refers to the common usage label for this location.  
 NON-DOS is the value in hex that is in LOCATION when DOS is not loaded in the Apple.  
 DOS is the value in hex that is in LOCATION when a 48K standard DOS 3.3 is in memory.

All locations and values are in hex. A set of ?? means there is no set value but could be anything at the point the program was stopped.

[LOCATION (hex)	NAME	NON-DOS	DOS]
03F2	RESET LO-BYTE	03	BF
03F3	RESET HI-BYTE	E0	9D
03F4	POWER UP BYTE	45	38 NOTE 1
03D0	DOS JUMP VECTOR	??	4C
03D1	LO-BYTE	??	BF
03D2	HI-BYTE	??	9D
03D9	RWTS JUMP VECTOR	??	4C
03DA	LO-BYTE	??	B5
03DB	HI-BYTE	??	B7
0036	OUTPUT HOOK LO	F0	BD
0037	OUTPUT HOOK HI	FD	9E
0038	INPUT HOOK LO	1B	81
0039	INPUT HOOK HI	FD	9E
0067	BEGINNING OF BASIC	01	01 NOTE 2
0068	DITTO HI-BYTE	08	08
0069	START OF VARIABLES	??	??
006A	DITTO HI-BYTE	??	??
0075	CURRENT LINE # OF	??	??
0076	BASIC PROGRAM	??	??
00AF	END OF BASIC	??	??
00B0	DITTO HI-BYTE	??	??
00D6	RUN FLAG?	??	?? NOTE 3
9D00	START OF DOS		
A884	START OF DOS KEYWORDS		
F800	START OF MONITOR ROM		

NOTE 1: This byte must be set correctly, otherwise the Apple will do a "cold start" when you push RESET. The proper value is the exclusive-or of location 03F3 and the value A5 hex. See page 37 of the Apple II REFERENCE MANUAL.

NOTE 2: If the program is in Applesoft then this generally points to 0801; however, it can be moved to make room for machine language routines, etc.

NOTE 3: This is an undocumented location. If the value in this location is less than 80 hex (128 dec.) then Applesoft will interpret entered commands normally, i.e., LIST will list a program, etc. Make this byte greater than 80 though, and any command entered will cause the Applesoft program to RUN. For example, type in LIST and the program runs. Type [any] command and the program will run. A nifty protection scheme!

## APPENDIX B

This is a list of suggested books which can aid the WILDCARD user who wants to dig deeper. Good luck.

Apple Computer Inc.  
Apple ][ REFERENCE MANUAL, Product #A2L001A  
Cupertino, CA 95014, 1981

Apple Computer Inc.  
Apple ][, The DOS Manual, Product #A2L0036  
Cupertino, CA 95014, 1981

Apple Computer Inc.  
Apple ][ Monitors Peeled, Product #D2L0013  
Cupertino, CA 95014, 1981

Apple Computer Inc.  
Applesoft Basic Programing Reference Manual,  
Product #A2L0006  
Cupertino, CA 95014, 1981

Don Worth and Pieter Lechner  
Beneath Apple DOS  
Quality Software  
Reseda, CA 91335, 1981

## APPENDIX C

If the WILDCARD doesn't seem to function, try some of the suggestions below. If you really get stuck call East Side Software at 212-355-2860, 9:00 to 5:00 EST.

### 1. Apple "hangs" up when turned on.

Make sure the WILDCARD is firmly in place in the slot. With the power off, check to see that it is properly seated. Remove the card and try reinserting it again. Make sure all the ICs on the WILDCARD are properly seated in their sockets. See page 3 on WILDCARD INSTALLATION.

### 2. The WILDCARD seems to work intermittently.

Turn the Apple off. Remove the WILDCARD. With an ordinary pencil eraser gently clean the gold fingers on the edge of the board. Do not rub hard or long, just enough to clean off any dirt or oxidation.

### 3. How can I test the WILDCARD?

Simple. Enter the little program from page 7. Run it and push the WILDCARD button. Hit RETURN. Enter R for RESTART and the program should resume normally. Repeat the test several times to be sure. If it fails try steps 1 and 2 above. If nothing corrects the problem contact East Side Software at 212-355-2860 from 9:00 to 5:00 EST.

## APPENDIX D

### FRANKLIN ACE 1000 MODIFICATION

This modification is required only for the Franklin ACE 1000. The ACE 100 does not require any modifications.

The Franklin ACE 1000 Computer seems to have a compatibility problem in the card slots. Specifically the INHIBIT line has timing differences with the Apple ][.

This problem affects the operation of the WILDCARD. We have designed a minor hardware modification which will allow normal INHIBIT operation. This will not affect the operation of the Franklin in hardware or software. The modification can be left permanently in the Franklin.

A mod kit sells for \$8.00 and is available directly from East Side Software. The kit will allow you to make the modification without soldering or wire wrapping. Contact us at the phone number or address at the front of the manual to order the mod kit.

If you purchase the mod kit then you will not need to follow these directions.

Without the mod kit you will need a piece of thin insulated wire (26 - 30 gauge) about 4 inches long. A piece of wire-wrap wire, if available, is ideal. Strip about 1/4 inch of insulation off each end of the wire.

You will also need a pair of needle nose pliers and a small screwdriver or IC puller. If you have a small soldering iron (25 - 30 watt, NOT a soldering gun) and the necessary experience you can make the mod more permanent. A wire wrapping tool can also be used if you own one.

If you don't wish to modify the Franklin yourself, contact your dealer. He may have the necessary tools to make this modification. Of course, you can always buy the mod kit directly from East Side Software. It is easy to install.

This mod may effect your warranty from Franklin Computer. However, if you use our kit the modification can easily be reversed.

Important: Always turn off your Franklin before installing the modification. Be extra sure - unplug your computer.



## STEP-BY-STEP DIRECTIONS

1. TURN OFF AND UNPLUG THE FRANKLIN.
2. Carefully pry back the two latches holding the back of the cover and remove the cover. Place the computer on a flat surface in front of you with the keyboard facing you.
3. Notice that along both sides of the circuit board there are large white letters. We are interested in the row of 7 chips that lie between the two F' markings. Each chip resembles a little black rectangle. We will use the terms chip and IC interchangeably.
4. Look at the second chip over from the left. There should be small white lettering on the area in front of the chip identifying it as 'LS00'. This is the first chip which you need to remove.
5. Using an IC puller or a small screwdriver, carefully pry the IC out of its socket. Note that the socket is mounted on the Franklin board and that the IC is mounted in the socket.
6. The IC has a notch that faces towards the keyboard. If you are using a screwdriver to pry, gently lift the back edge first, then the front edge. Lift it a little at a time so as not to bend any pins.
7. Place the IC on the table with the notch facing towards you. Notice that there are two rows of pins running up and down the left and right sides. Each side has seven pins.
8. Locate the second pin from the back left of the IC. Using the needle nose pliers or a small screwdriver bend this pin out away from the IC. Bend it so it sticks straight out.
9. Take one end of the 4" wire and wrap the bare end around the bent pin of the IC. If you have a soldering iron, carefully and quickly solder the wire to the pin. Use only thin, rosin core solder. If you have a wire wrap tool, wrap the end of a piece of wire-wrap wire around the pin.

10. Carefully bend the wire out of the way so it will not get caught when you reinsert the chip.
11. Line the IC back up with its socket. Make sure that the notch on the chip faces towards the keyboard. Also make sure that all the pins line up with their respective holes in the socket.
12. Gently push the IC back into the socket. Apply even pressure over the surface of the IC.
13. Check to make sure that all pins are properly in their holes, except, of course, the one we have bent out.
14. Now stand back and take a deep breath. You're almost finished!
15. The IC to the immediate right of the one you just worked on is marked 'LS08'. In the same manner as before, remove this chip from its socket.
16. Place the chip on the table with the notch facing towards you. Notice that it looks the same as the other one, with seven pins on each side.
17. Locate the second pin from the front right. Bend this pin out from the chip just as you did for the other chip.
18. Place this chip aside for a moment. Return to the Franklin and face it with the keyboard facing you.
19. Locate the socket you removed the chip from. Notice it has two rows of small holes that match the chips.
20. Locate the second hole from the right front. Note that this hole matches the position of the pin on the chip which you have just bent.
21. Lead the free end of the wire around the back of the sockets and down the right side of the empty one.
22. Carefully push the end of the wire into the second hole from the right front. The pliers will be useful in this endeavor.
23. Bend the wire so it's at right angles away from the socket. This will prevent any extra bare wire from touching any exposed leads or pins.
24. Now replace the chip in its socket as carefully as you did before. Make sure that the notch faces towards the keyboard.

25. Make sure all the pins are in their respective holes and none are mashed or bent.
26. Double check all your work. If any pins on either IC are mashed or bent carefully remove the chip and straighten the bent pins. This excludes the pins we have asked you to bend!
27. If you have have broken any pins on the ICs they are available from Radio Shack. The ICs are 74LS00 which goes in the 'LS00' position and 74LS08 which goes in the 'LS08' socket. East Side Software can also supply these chips at nominal cost. Please contact us directly.
28. Carefully remove any peripheral cards from the Franklin. Reconnect the power cord and monitor, if neccessary.
29. Now comes the moment of truth. Plug in the Franklin and turn it on. Don't forget to turn on the monitor.
30. Verify that all is normal. The Franklin should beep and the screen should display the usual sign on. IF IT DOSN'T, TURN OFF THE FRANKLIN. Double check all your work. Check for bent pins or misinserted ICs. If necessary undo the modification and try again. If you installed the chips backwards or misaligned then you may have damaged them, replacements are available see step 27.
31. Assuming all is well, turn off the Franklin and replace your peripheral cards. Try the Franklin again.
32. Replace the cover and you are done!

## APPENDIX E

### WHAT TO DO IF YOU OWN AN APPLE LANGUAGE CARD

If you have an Apple Language Card\* in your Apple you will need to make a small modification to the card. This will not interfere with its normal operation nor is it permanent. It can quickly be changed back if you ever sell it or need repairs.

The modification is necessary because the Language Card has, in addition to 16K of RAM, a ROM that automatically substitutes itself for the F8 ROM on the motherboard. Apparently this was done to allow the owners of the original Apple ][ without the Autostart ROM not only to increase the RAM to 64K but also to allow them to upgrade to the new Autostart ROM without removing chips.

Unfortunately, this system interferes with the WILDCARD's operation. Also, many of these Language Cards are installed on Apple ][+. This makes the ROM on the card redundant and unnecessary.

The modification involves removing an IC chip from the card, bending one of its pins out of the way and reinserting the chip on the card. If you ever need to restore the card all you have to do is rebend the lead back into place and put the chip back into its socket.

The next page gives step-by-step instructions. The only tool you will need are an IC puller (one came with the Language Card: it looks like a small pair of spaghetti tongs) or a small screwdriver or similar instrument.

[Please, please, please] turn your Apple off [before] you start any modifications. For added safety, unplug the Apple from the wall outlet. East Side Software cannot be responsible for any damage you may do to your Apple nor can we be responsible for violation of any warranties. This may sound ominous but if you follow the directions there will be no problems. The Apple will run exactly the same as before.

\* The Apple Language card is a 16K RAM card made only by Apple Computer. Although other 16K cards are called Language Cards they do not need modification. Only modify your card if it is made by Apple Computer.

## STEP-BY-STEP DIRECTIONS

1. Turn off the Apple and unplug it from the wall outlet.
2. Remove the cover of the Apple and locate the Language Card in slot 0. This is the left most slot.
3. If you have the Apple Language Card Installation and Operation Manual check pages 3 thru 6 for further help.
4. Note the orientation of the cable that runs from the card to the motherboard. Carefully unplug the cable from the Apple motherboard. Unplug it from the motherboard not the Language Card. The IC puller can be helpful in this task or you can use the small screwdriver to carefully pry up the connector. Pry up the front a little and then the back.
5. Gently pull up on the card to remove it. If it won't come easily then rock it front to back a little at a time.
6. Lay the board on the table with the parts face up. The cable should be on the bottom left and the gold "fingers" should be on the bottom right.
7. Using the diagram below locate IC 5. It is a small rectangular, black block near the upper right. On the Language Card at the top of the chip there is a white number 5. On the Language Card at the bottom of the chip is the legend '74LS20'. This number will also be on the IC itself in some form.
8. Gently pry the IC out of its socket using either the IC puller or a small screwdriver. DO NOT try to pry the socket off the card. Be careful not to bend any of the IC leads out of shape. If you do, straighten them carefully with a small pair of pliers.
9. Using diagram 2 below, locate and bend out pin #6 of the IC. Bend the lead about 45 degrees out from the body of the IC.
10. Make sure all the other pins are aligned with each other. If any are bent, gently straighten it to match the others.
11. Replace the IC in its socket. Make sure that the notch is facing to the left. Note that all the ICs face the same way, and this one is no exception. Make sure all the pins line up in their respective holes. Apply firm downward pressure evenly over the IC surface and it should slide right into place.

12. Examine the IC to make sure that all the pins are in the socket. There is a chance that a pin might get folded under. If so then remove the IC and straighten any folded pin and reinsert.

13. If you break any pins, don't panic. The IC is readily available. Radio Shack should carry it. If you can't locate one call East Side Software at 212-355-2860 from 9:00 to 5:00 EST. We will supply it for a nominal cost.

15. If you have an Apple ][ + or an Apple ][ with a new autoboot F8 ROM then proceed to step 18. The next 2 steps are for those who have old monitor ROMs on their Apple. This is the ROM that puts you into the monitor when you turn your Apple on or hit RESET.

16. If you have an old monitor ROM (not autobooting) on the motherboard you will want to move the ROM from the Language Card to the motherboard. Carefully remove the F8 ROM from the motherboard. This is the large IC at position F-3. It's marked ROM F8 on the motherboard. Remove the ROM from the Language Card and install it on the Apple motherboard. Make sure the little notch on the ROM faces towards the keyboard and that all the pins are properly aligned.

17. Take the old monitor ROM and put it away for safe keeping. Alternately you can install it on the Language Card. It won't function but you will know where it is located. Make sure you install it with the little notch facing the top of the card.

18. Reinstall the Language Card in your Apple. Don't forget to plug the cable back into the motherboard. Make sure that the card is firmly seated in slot 0.

19. Turn on the Apple and make sure that all is well. If the machine does not work normally then TURN OFF THE APPLE. Remove the Language Card and recheck all the previous steps. Make sure the IC is installed correctly.

20. If all is well then proceed with the WILDCARD manual.

21. If you need to restore the Language Card then follow the procedure from the beginning except bend pin 6 of the IC back into position and reinstall.

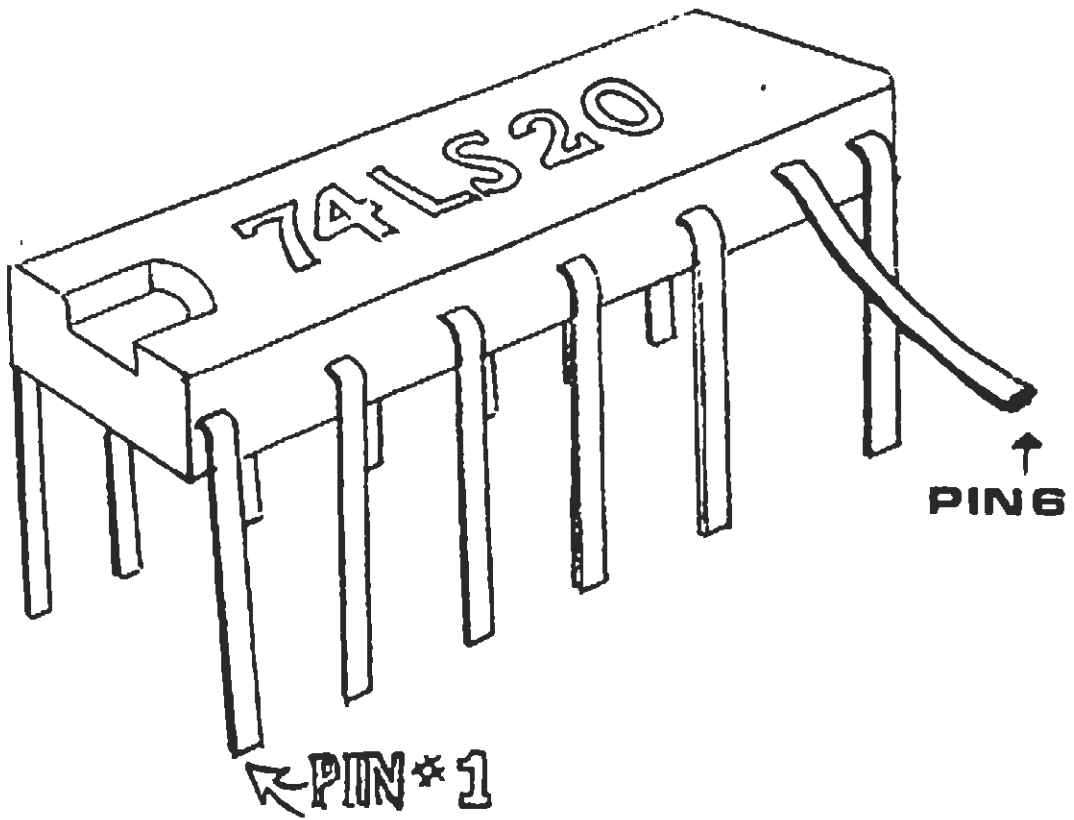


DIAGRAM 2

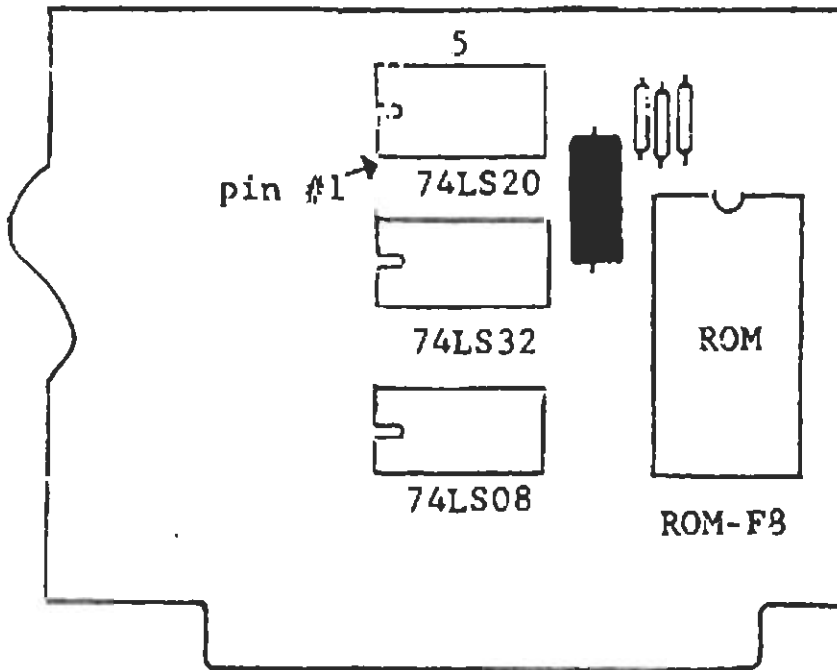


DIAGRAM 1

NOTE: Only 1/2 of card shown.