Module Emulator

AT LAST! do away with all of those messy modules!

Some of Module Emulator's outstanding features:

- back-up your modules on a disk!
- run all of your modules through a single module!
- Saves wear and tear on your console
- no more module swapping or shopping
- will support Myarc's 128 K or 512 K Memory Expansion Cards
- Costs less than just a couple of modules!

Module Emulator's requirements:

Required:

- TI 99/4A console
- 32 K Memory Expansion
- single disk drive
- 6000+ module

Optional:

- Myarc's 128 or 512 K Memory Expansion Card
- multiple drives in any configuration
- Cartridge Port Expander ("Widget" by Navarone Ind.)

Software and 6000+ module	Software only
$69.95	**$25.95**

Exclusive Distributor:

PILGRIMS' PRIDE • 5 Williams Lane • Hatboro, PA 19040 • (215) 441-4262

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SPECIAL RECOGNITION

We would like to give special recognition and a truly heartfelt thanks to JAMES FERRIS for all his help. Jim's dedicated interest in PROGRAM MANAGER and MODULE EMULATOR has been the cohesive and driving force behind these two projects. He has freely and unselfishly given of himself and his time to see the two projects to fruition.

Jim's guidance, helpful constructive criticism, knowledgeable assistance, dedicated devotion, and programming expertise have truly been an inspiration to all involved in the development of both PROGRAM MANAGER and MODULE EMULATOR.

Without his special insight and creative programming techniques, many aspects of both programs would have been considerably more difficult or seemingly impossible.

To a mentor and a very special friend, Jim,

THANKS.

PURPOSE

MODULE EMULATOR was written for two very specific purposes. Its prime purpose is to save wear and tear on one of the TI 99/4A's most vulnerable parts, the module port. As a result of inserting and removing modules, sometimes rather carelessly, the connector into which the modules fit becomes loose and worn. If the condition of the connector becomes too bad your console will be rendered useless. This condition would obviously require you to get your console fixed or replaced. This could be expensive and time consuming. By using MODULE EMULATOR and placing most of your modules on disk, you will almost totally eliminate the need to change modules, thus extending the life of your computer.

The second reason that MODULE EMULATOR was created was to give the average user a means to "back up" the modules that they have purchased. All computer users have learned through experience that it is mandatory to have backups of programs and files that are valuable. That is relatively easy to do with disk and tape based programs. But until MODULE EMULATOR, it was almost impossible to do with module based programs. It is especially important to be able to backup modules now that TI is no longer manufacturing any products related to the TI 99/4A. It is simply a matter of time until TI either becomes unable or unwilling to repair or replace modules, consoles, and other equipment.

INTRODUCTION AND OVERVIEW

The MODULE EMULATOR software program package functionally is divided into two parts. The first part of the program allows you to backup your modules onto disk. The second part of MODULE EMULATOR allows you to run the modules you have backed up.

BEFORE STARTING...

Certain assumptions regarding hardware will be made throughout this manual. We highly recommend that you use a "widget" (officially known as a CARTRIDGE PORT EXPANDER by Navarone Industries - but hereafter for ease and brevity it will be referred to as a widget) for both backing up and running your modules. It will make your work considerably easier and will

prevent further unnecessary wear and tear on your console.

This manual will be written ASSUMING that you have both a widget and a two drive system, although neither is absolutely necessary. Toward the end of the manual you will find special notes for those who do not have either a widget or a second drive.

At the end of this manual there are several pages which have been devoted to very specific and important technical information that you must refer to in order to backup any particular module. As we progress through the backingup process we will refer to these charts.

Before you begin the actual backing up process, it is advised to have several newly initialized disks available to put the modules files on. You will find that a backed up module usually occupies between 20 and 50 disk sectors, so plan accordingly.

THE MODULE REFERENCE CHARTS

As stated above, the reference charts in the back of this manual contain valuable information necessary to the backing up procedure. Let's take a look at the charts for a minute before we begin.

The first column of the chart is labeled "NUMBER". It refers to the catalog number that was assigned to the module by its manufacturer. If no number was assigned to a module, then the name of the manufacturer is used instead.

> TI actually has a system for numbering their software. All of their modules have a prefix of "PHM-" and it is followed by a number in the 3,000's. The disk software is prefixed with "PHD-" and it is followed by a number in the 5,000's. Similarly, tapes are prefixed with "PHT-" and followed by a number in the 6'000's.
>
> "S/F" stands for Scott Foresman & Co. "S/F" is followed by a 5 digit number. Scott Foresman produced two different lines of modules; one marketed through TI and one marketed under their own label. Some of the modules in the two lines are identical and goby the same name (usually...). Others were marketed in one series or the other, but not both.

"ROMOX", "FUNWARE", "PARKER" (Parker Bros.), and "NAVARONE", and others also made modules that work with the TI 99/4A console. Where applicable, you will find their names in the first column.

The second column is a list of the actual names given to the modules by their respective manufacturers. They are arranged alphabetically in the list.

The third column, "6ROMS", refers to the number of GROM chips that the module actually contains or emulates.

Column four titled "START" references the module's starting address in the computer's memory. As you will see by looking the chart over carefully, most of them use 6000 as the address (hence, the name of our module!), but some don't - be careful. Again, all you need to know is the address given in the chart.

"ROMS" is the title of the fifth column in the charts. It refers to the "size" of the ROM chip in the module, if there is one. Again, note the chart - most modules do not have ROMS in them and therefore the chart shows a dashed line.

All the information you need to know about any of the modules you are going to back up is contained in these charts. Please refer to them carefully when using MODULE EMULATOR to back up modules. If you don't feed the program the proper information, you will not get a good runable copy of the module. We have backed up all of the modules in the list, and they all work.

"DISK", the heading of column six refers to whether a module requires disk support (or not) to run. TI Writer and Multiplan do require disk support.

PREPARING TO BACK UP A MODULE

Make sure that all your computer equipment is off before you begin. Place the widget into the GROM PORT of the TI 99/4A console where modules are normally inserted. Place the 6000+ module into slot #3 of the widget and place the module to be copied into slot #2. Make sure that they have been inserted carefully and are seated securely. Place the module selection

inserted carefully and securely. Place the module selection switch of the widget in position #3 (6000+ module). Turn on your external drive if you have one, then turn on your Peripheral Expansion Box, and then turn on your console. You are now ready to begin backing up modules.

BACKING UP A MODULE

All of your equipment is now on and you are ready to begin. You should have the TI colorful title screen in view now. As per the screen instructions, press any key. This will take you to a menu screen that gives you two choices: 1) TI BASIC, and 2) EDITOR/ASSEMBLER. You now choose #2 by pressing the "2" key on the keyboard. This will bring you to another menu screen that looks like this:

```
* EDITOR/ASSEMBLER *
PRESS:
 1 TO EDIT
 2    ASSEMBLE
 3    LOAD AND RUN
 4    RUN
 5    RUN PROGRAM FILE

 c1981 Texas Instruments
```

From this menu you should select option #3, "LOAD AND RUN" by pressing the "3" key on the keyboard. This selection will bring you another prompt screen which asks for a file name. It simply says, "FILE NAME?".

Before you go any further, make sure you have placed the MODULE EMULATOR program disk in drive #1, then respond to the question asking for a file name by typing in the response "DSK1.MODDUMP". Drive #1 will turn on and load the appropriate programs and files automatically.

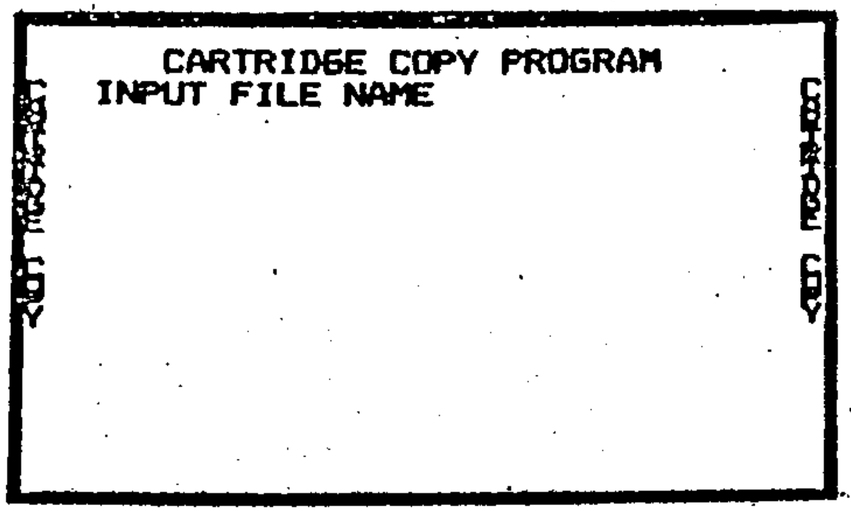
Other than one critical step which we will be explained in detail during our sample later, there really isn't much to do other than respond to the screen prompts as they occur.

LET'S DO A SAMPLE BACKUP

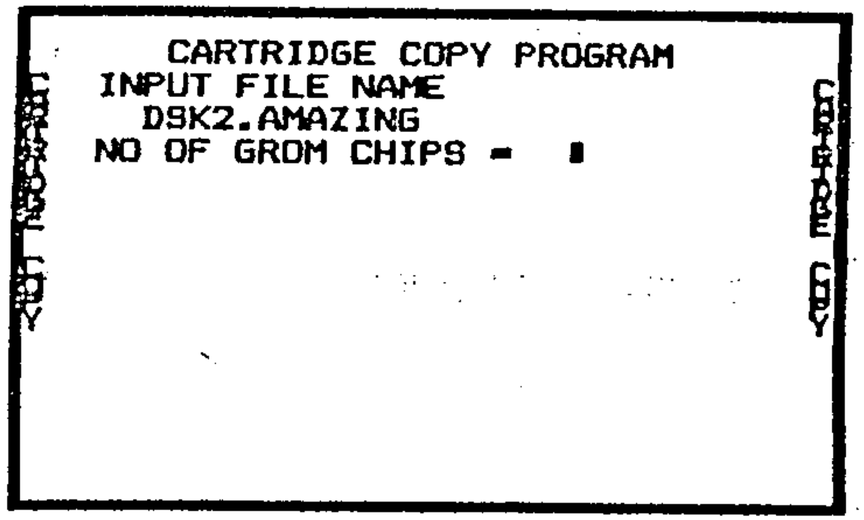
In order to make this procedure a little more clear, let's do a sample backup of a module to help you through the procedure the first time. We will backup the A-MAZ-ING module as an example. We'll assume that you have prepared by placing the 6000+ module in the third position of your widget, have placed the A-MAZ-ING module in the second position of the widget, loaded MODDUMP and are ready to proceed.

In the first portion of our sample we will illustrate the actual screens that you will see so that you will recognize what you are doing and anticipate the next screen. As we progress we will eliminate the screens from the documentation to conserve space. By that time you should be reasonably well adjusted to what the program is doing and should have no difficulties.

Once MODDUMP has been loaded you will be presented with a screen that looks like:



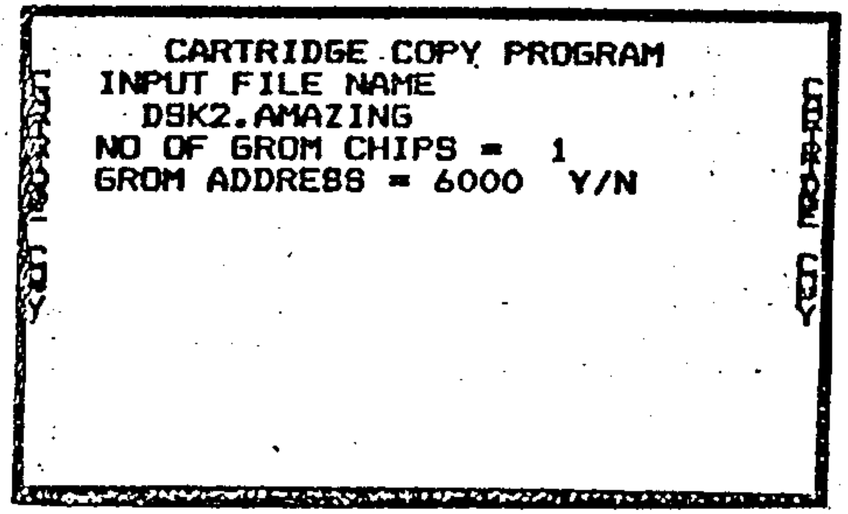
The program is asking you to enter a name that will identify the module file once it has been put onto a disk. Your answer should consist of a proper drive address and a file name. The correct format for your answer is, "DSK2.AMAZING". When you have typed this in, press the ENTER key and you will proceed to the next screen:



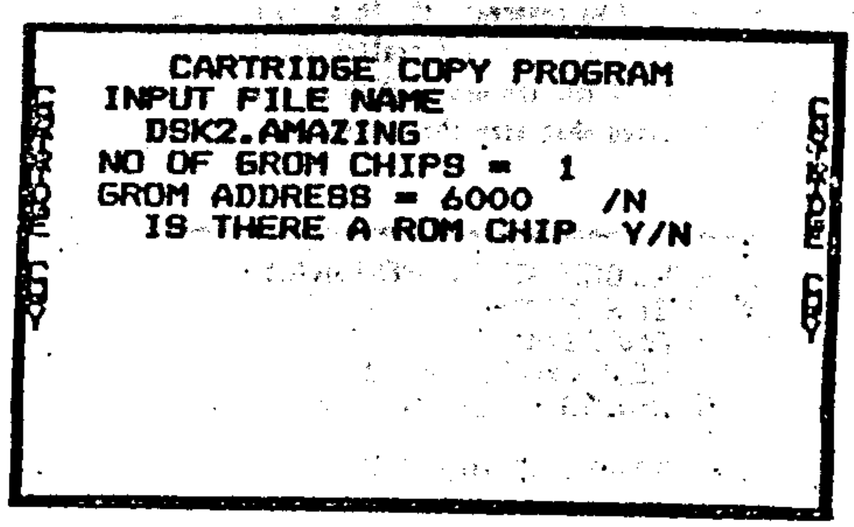
MODDUMP is asking you how many GROM chips there are in the module you are going to backup. You find the answer to this question in the back of the manual in the charts. We have chosen the first module on the list simply for speed in looking up information. Look at column 3, "GROMS", and find the number "1" in the space. Press the "1" key to answer the question. After you press the key, you must press ENTER.

If you make a mistake anywhere along the way while answering any of the questions you will be given an opportunity at the end to make corrections. If you answer any of the questions incorrectly, but do not realize it, the backing up process will most likely appear to proceed as normal, but will result in a file that will not run. You will recognize that you made a mistake only when you try to run the module file and it won't work. Then you must perform the backing up procedure over again. Nothing lost but a little time.

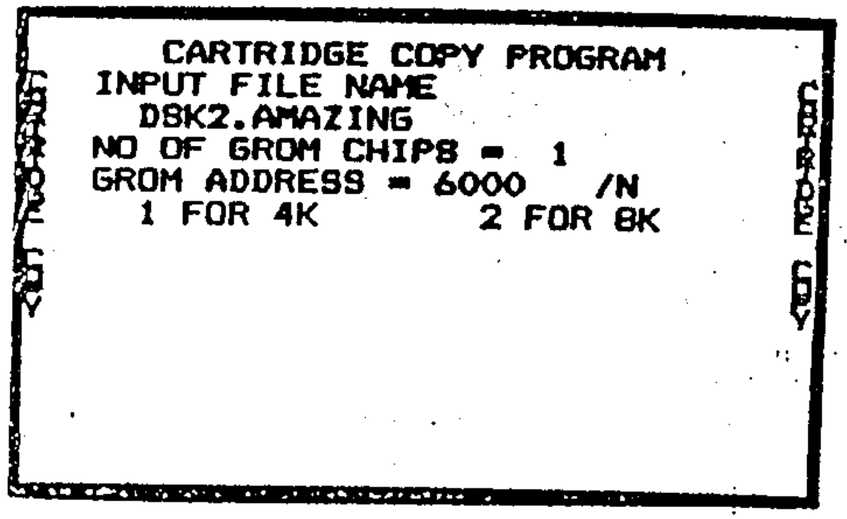
The next sequence of screens begins with:



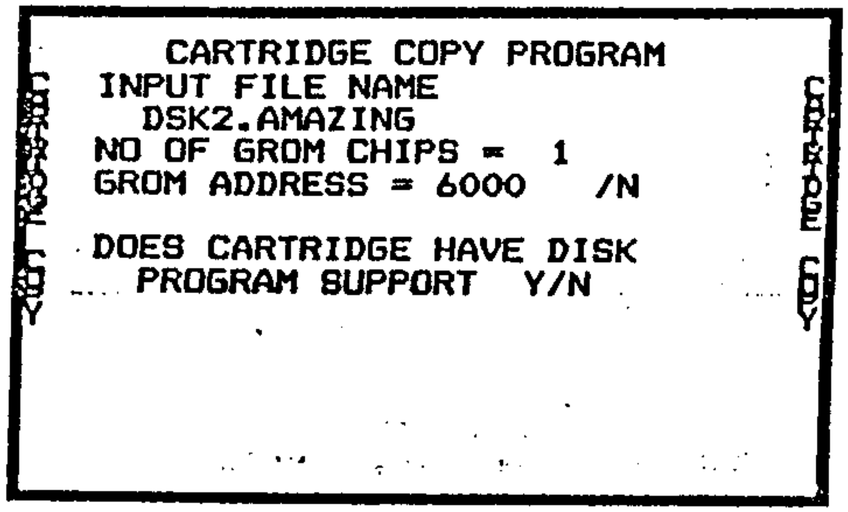
MODDUMP is asking you what the starting address of the module program is. Again, refer to the chart in the rear of this manual. Look in column 4, "START". There you will find the proper number. In this case it is 6000, so you press the "Y" key. You need not press ENTER. If the starting point in the chart shows a number other that 6000, press the "N" key and a new address will be displayed on the screen. If it is correct, press "Y", if not, press "N" again, and a new address will cycle on the screen. The addresses you will cycle through are: 6000, 8000, A000, C000, E000, 0000, 2000, 4000, and back to 6000. As long as you press the "N" key the program will continue to cycle through this set of numbers. If you miss the correct address the first time, go through the cycle until the proper one comes up again. Once you have chosen the correct value, you will procede to the next screen:



Now you are being asked if there is a ROM chip in the module. Consult the chart and find the answer. Look in column 5, "ROMS". There you will find either a dashed line that tells you there is no ROM chip in the module, or you will find either "4K" or "8K". If you have found a dashed line, then you answer the question correctly by pressing the "N" key. If there was a number in the box, then press the "Y" key. If "N" is the answer you will skip this next step. If "Y" is correct then you will be asked to clarify:



The correct procedure should be apparent at this point. Simply press either "1", or "2" depending upon what information you found in the chart. A [illegible] will show that A-MAZ-ING has no ROMS in it. In this case, you would have not been asked what size the ROM is, you would simply go to the next screen:



The MODDUMP program is asking you a very interesting question. Essentially it is asking you if the entire program contained in the module, or is there more of it on a disk. If you are familiar with TI WRITER, you will notice that each time you choose either the Editor, or the Formatter the computer accesses the disk drive and finds another set of files to run. This appears to have been done by TI for two reasons. First, it is part of a protection scheme, and secondly it makes updating a program very easy. Instead of having to issue new modules to change a program, they simply have to change some of the files on the disk. Two very good reasons for having done this. There are only a very few programs that were built this way, but be careful to consult the chart accurately for the correct information.

The two answers to this question should be apparent. If you choose NO by pressing the "N" key, you will be presented with the next prompt. If the answer is yes ("Y"), then the program will recommend that you use a 128K or a 512K memory expansion card. This is where things get a little unscientific! (Many of the modules have more than one slightly different versions!). Our experience has been that these kinds of modules generally require the larger memory to run because of their size. If the answer to this question is yes, the program will ask you which memory card you

are using. Answer appropriately, and then you will be prompted to place the disk onto which you are about to put the module file into drive #1. If you answer that you are using the larger memory card, that "tag" will become part of the module file and you will be asked about it each time that you run the module file.

When you have finished answering all of the above questions, the program will ask you if the all of the previous information is correct. Most of it is still displayed on the screen and you can double check it. If it is correct, press "Y" and you will advance to the next portion. If any of the data are incorrect, press "N". BE WARNED -- this will ERASE ALL OF THE PREVIOUS INPUT AND BRING YOU RIGHT BACK TO SCREEN #1 AGAIN. At this point you may begin again. It really is not of any great consequence that you go back to the first screen, but you should be aware of what will happen when you make a mistake and try to correct it. If you go back to the beginning, simply answer the questions all over again. It is nothing more than a few keystrokes.

THE CRUCIAL STEP

Now is the time for you to be careful so that you don't ruin all that you have already done. MODDUMP asks you if the cartridge is in the port. BEFORE YOU ANSWER, you must ever so GENTLY slide the widget switch from position #3 (6000+ module) to position #2 (A-MAZ-ING) module. With this successfully completed, you should answer "Y" and the program will procede to back up the module to your disk. As MODDUMP progresses it will show you on the screen what it is doing. It says "COPYING GROM CHIPS....PLEASE WAIT". Then if it is applicable, it will tell you when it is copying the ROMS.

When MODDUMP has finished copying, it will say "COPYING COMPLETE" and ask you if you are finished, or if you would like to do another module. If you are finished, you will be returned to the title screen. If you have more to do, you will be returned to screen #1 and asked for a new file name.

As you can see, it is a relatively simple process. If you really get

fouled up and totally confused, turn the system off, regain your breath and confidence and begin again. YOU CAN NOT HURT YOUR MODULE, NOR CAN YOU HURT YOUR COMPUTER WITH THIS PROCESS. The worst that will happen is that you will cause a "lock up" and you must shut down everything and start over. Another thing that might happen is that you will backup a module and your result will not be a runable file. This indicates that you might have answered one or more of the questions improperly, or when you moved the widget switch you jarred something. If this is the case, just do it over.

SPECIAL NOTES FOR SINGLE DISK DRIVES SYSTEMS

The following minor modifications to the above procedure will be necessary if you own a single drive system:

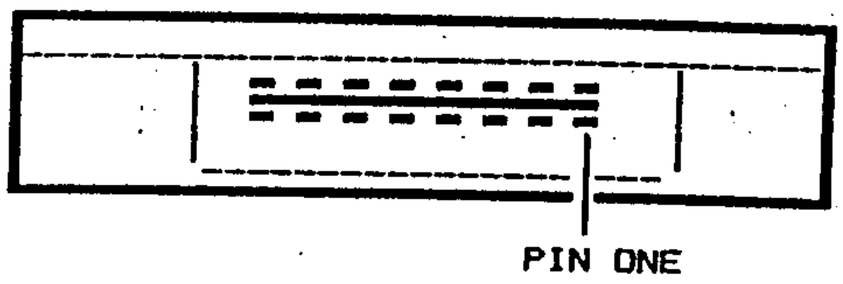
1) After MODDUMP has been loaded as described above, remove the MODDUMP disk from your drive and replace it with the disk you have prepared to accept the module file.
2) Adjust the responses given in the sample above to "DSK1.filename"
3) If you are running the module files from a single drive system, each disk that has module files on it ALSO MUST HAVE the following files on it: FILE1, FILE2, FILE3, SIMA1, SIMA2, SIMA3. Copy these files from the MODULE EMULATOR disk onto EACH disk which contains backed up modules. They are necessary to run the modules.

SPECIAL NOTES FOR USE WITHOUT A WIDGET

It is possible to run MODULE EMULATOR without a widget. We have done it, and it is possible. But, we must warn you, IT IS VERY TRICKY AND FRUSTRATING. The basic idea is simply that you must change modules part way through the backing up procedure, without resetting the computer! Easier said than done.

If you do not have a widget but would like to try to back up a module, the procedure is exactly the same as described above with one exception. Follow the directions exactly as given above until you get to the warning about "THIS IS A CRUCIAL PART". In the sample above you are instructed to slide the widget switch to the position where the module to be backed up is plugged in. Without a widget you MUST REMOVE the 6000+ module and INSERT the module that you are backing up, WITHOUT RESETTING THE COMPUTER. That means that you MUST NOT get the TI Title screen back! If you do, you must begin again.

Before you switch modules, you must prepare the one to be backed up by covering PIN #1 on the module connector with a small piece of tape so that it can not make contact. As you face the end of the module that is inserted into the computer, pin #1 is found on the lower half of the connector board, on the right. It looks like this:



RUNNING A MODULE FILE

This is the easiest and least complicated of all the parts. In fact it is incredibly simple!

If you are starting from scratch, you should first place the 6000+ module in the cartridge port, enter the main menu, and choose EDITOR/ASSEMBLER. When the E/A menu appears, choose option #3 (LOAD AND RUN). You will be asked for a file name. Type in DSK1.ME and press ENTER.

The module running portion of MODULE EMULATOR will be loaded and present you with the question, "INPUT FILE NAME". You respond by typing in the appropriate disk drive number and file name. Format it thusly, "DSKn.FILENAME . ME will go to the proper drive and load and run the module file you have chosen. That is all there is to it.

If you press QUIT after you have finished with any module file, and have not turned off any part of the system, then MODULE EMULATOR is still in the computer. From the title screen press any key and you will get a menu that has MODULE EMULATOR as option #3; choose it, and it will run again asking you to input a file name.

A FEW FINAL NOTES

As you would have expected, we have tried our very best to make MODULE EMULATOR compatible with as many modules as possible. The one largest drawback that we have run into is simply knowing WHAT modules exist! There are many which are listed on "official" TI lists and were in fact never produced! There are others which were produced (primarily by third parties) that were never listed anywhere! There are several modules which we believe to exist, but we have not tried them because we have never been able to get them.

If you have any difficulties with the program, please don't hesitate to call our Customer Service department (1-215-441-4262) and seek help. We will do everything in our power to assist you.

Since MODULE EMULATOR does not backup all of the modules that were produce for the TI 99/4A, we would suspect that there are many people who are willing to experiment with the program and try to backup other modules. Several people have already asked us to act as a "clearinghouse" for such projects. We will collect all this information from anyone who wishes to participate. Send us a copy of the module file you created and instructions for duplicating the process. We will collect this information and pass it around free among all those who have participated in the project.

We cannot pass out copies of the backed up modules, we just want them for our files and reference. It is illegal for us to pass around copies of modules that were copyrighted by someone. But, if you have a PROCESS, or an addition to our program that you would like to share with others, by all means let us know and we will share it as per above.

In addition to running PROGRAM MANAGER and MODULE EMULATOR, the 6000+ module is capable of several other tasks. We have only tried a very few of the programs available, but we suspect that it will run most, if not all, of the Freeware software available for the SUPER CART that was made by several different groups of people in the recent past.

Again, if you would like us to act as a "clearinghouse" for any of this software that was made for the SUPER CART, we will do so. Please DO NOT expect us to distribute ANY software that has been copyrighted though. We will not pass any of it along. We will only collect and pass along Freeware, or software that is public domain, or other software, if and only if we have the EXPRESS WRITTEN PERMISSION of the author.

SPECIAL IMPORTANT NOTICE

As we began to produce this second version of our MODULE EMULATOR manual, it has come to our attention that THERE APPEARS TO BE MORE THAN ONE VERSION OF SOME OF THE MODULES that were produced by TI and for TI!

If you have a different version of a module that we have, you may experience slightly different results than what we have shown in this manual! Be assured, that we have successfully backed up all of the modules that appear in this manual, at least with the version of the module that we have.

We have been notified by several customers that they have successfully backed up several modules which are not on our list. We also know of a few instances where customers have had some difficulty backing up modules we have listed.

If you have difficulty with any of the modules listed in this manual, please contact our Customer Service Department at 1-215-441-4262 and they will be glad to help you.

NUMBER	NAME of MODULE	GROMS	START	ROMS	DISK
PHM-3030	A-MAZ-ING	1	6000	—	N
S/F 30201	ADDITION and SUBTRACTION 1	3	6000	—	N
S/F 30204	ADDITION and SUBTRACTION 2	3	6000	—	N
S/F 30226	ADDITION and SUBTRACTION 3	4	6000	—	N
PHM-3027	ADDITION and SUBTRACTION I	3	6000	—	N
PHM-3028	ADDITION and SUBTRACTION II	3	6000	—	N
PHM-3041	ADVENTURE (both D and T)	1	6000	—	N
PHM-3115	ALIEN ADDITION	2	6000	—	N
PHM-3114	ALIGATOR MIX	2	6000	—	N
X ROMOX	AMBULANCE	0	6000	8K	N
ROMOX	ANT EATERS	0	6000	8K	N
PHM-3003	BEGINNING GRAMMAR	3	6000	—	N
PHM-3033	BLACKJACK AND POKER	1	6000	—	N
PHM-3032	BLASTO	1	6000	—	N
X PHM-3054	CAR WARS	1	6000	—	N
PHM-3083	COMPUTER MATH GAMES II	3	6000	—	N
PHM-3086	COMPUTER MATH GAMES IV	2	6000	—	N
PHM-3038	CONNECT FOUR	1	8000	—	N
PHM-3096	DECIMALS	3	6000	—	N
S/F 30229	DECIMALS 1	4	6000	—	N
S/F 30244	DECIMALS 2	4	6000	—	N
PHM-3116	DEMOLITION DIVISION	2	6000	—	N
PHM-3001	DEMONSTRATION	4	6000	—	N

NUMBER	NAME of MODULE	GROMS	START	ROMS	DISK
PHM-3000	DIAGNOSTIC	1	6000	—	N
NAVARONE	DISK FIXER	0	6000	8K	N
S/F 30210	DIVISION 1	4	6000	—	N
PHM-3049	DIVISION I	4	6000	—	N
PHM-3117	DRAGON MIX	2	6000	4K	N
PHM-3002	EARLY LEARNING FUN	2	6000	4K	N
PHM-3015	EARLY READING	5	6000	—	N
S/F 30112	EARLY READING 1A	5	6000	—	N
PHM-3100	EQUATIONS	2	6000	—	N
PHM-3095	FRACTIONAL NUMBERS	4	6000	—	N
S/F 30220	FRACTIONS 1	4	6000	—	N
S/F 30238	FRACTIONS 2	4	6000	—	N
S/F 31177	FROG JUMP	2	6000	—	N
PHM-3037	HANGMAN	1	A000	—	N
FUNWARE	HENHOUSE	0	6000	8K	N
FUNWARE	HENPECKED	0	6000	8K	N
X PHM-3006	HOME FINANCIAL DECISIONS	2	6000	—	N
PHM-3007	HOUSEHOLD BUDGET MGMT	2	6000	—	N
X PHM-3023	HUNT THE WUMPUS	1	6000	—	N
PHM-3034	HUSTLE	1	6000	—	N
PHM-3024	INDOOR SOCCER	2	6000	—	N
PHM-3094	INTEGERS	2	6000	—	N
PHM-3099	LAWS OF ARITHMETIC	3	6000	—	N

NUMBER	NAME of MODULE	GROMS	START	ROMS	DISK
PHM-3158	MATASH	3	6000	8K	N
PHM-3101	MEASUREMENT	3	6000	—	N
PHM-3119	METEOR MULTIPLICATION	2	6000	—	N
PHM-3025	MIND CHALLLENGER	1	6000	—	N
PHM-3118	MINUS MISSION	2	6000	—	N
PHM-3092	MULTIPLICATION 1	3	6000	—	N
PHM-3029	MULTIPLICATION 2	3	6000	—	N
S/F 30223	MULTIPLICATION 2	4	6000	—	N
PHM-3057	MUNCHMAN	1	6000	—	N
PHM-3020	MUSIC MAKER	3	6000	—	N
S/F 31189	NUMBER BOWLING	2	6000	—	N
PHM-3098	NUMBER READINESS	2	6000	—	N
PHM-3051	NUMERATION II	3	6000	—	N
PHM-3067	OTHELLO	1	6000	4K	N
PHM-3097	PERCENTS	4	6000	—	N
PHM-3022	PERSONAL REAL ESTATE	4	6000	—	N
PHM-30449	PERSONAL REPORT GENERATOR	2	6000	—	N
PHM-30104	PHYSICAL FITNESS	2	6000	—	N
S/F 31180	PICTURE PARTS	2	A000	—	N
ROMOX	PRINCESS AND FROG	0	6000	8K	N
S/F 31186	PYRAMID PUZZLER	2	A000	—	N
FUNWARE	RABBIT TRAIL	0	6000	8K	N
S/F 30117	READING ADVENTURES	5	6000	—	N

NUMBER	NAME of MODULE	GROMS	START	ROMS	DISK
S/F 30115	READING CHEERS	5	6000	—	N
PHM-3082	READING FLIGHT	5	6000	—	N
PHM-3043	READING FUN	5	6000	—	N
PHM-3046	READING ON	5	6000	—	N
S/F 30121	READING POWER	5	6000	—	N
S/F 30113	READING RAINBOWS	5	6000	—	N
S/F 30113	READING RALLY	5	6000	—	N
PHM-3048	READING RALLY	5	6000	—	N
PHM-3047	READING ROUNDUP	5	6000	—	N
S/F 30118	READING ROUNDUP	5	6000	—	N
S/F 30119	READING TRAIL	5	6000	—	N
S/F 30123	READING WONDERS	5	6000	—	N
ROMOX	ROTOR RAIDERS	0	6000	8K	N
FUNWARE	SCHNOZ-OLA	0	6000	8K	N
S/F 31192	SPACE JOURNEY	2	A000	—	N
PHM-3011	SPEECH EDITOR	1	6000	—	N
NAVARONE	SPEED READING A	0	6000	8K	N
NAVARONE	SPEED READING B	0	6000	8K	N
PHM-3225	STAR TREK	2	6000	8K	N
PHM-3178	STORY MACHINE	2	B000	8K	N
PHM-3091	SUBTRACTION	2	6000	—	N
PHM-3035	TERMINAL EMULATOR 2	4	6000	8K	N
PHM-3031	THE ATTACK	1	6000	—	N

	NUMBER	NAME of MODULE	6ROMS	START	ROMS	DISK
	PHM-3052	TOMBSTONE CITY	1	6000	8K	N
X	PHM-3064	TOUCH TYPING TUTOR	3	6000	—	N
	PHM-3042	TUNNELS OF DOOM (D and T)	5	6000	—	Yes
	PHM-3008	VIDEO CHESS	4	6000	4K	N
	PHM-3018	VIDEO GAMES	2	6000	—	N
	PHM-3005	VIDEO GRAPHS	1	6000	—	N
	PHM-3021	WEIGHT and NUTRITION	5	6000	—	N
	PHM-3039	YAHTZEE	1	6000	—	N
	PHM-3036	ZERO ZAP	1	E000	—	N
X	ROMOX	TYPO II	0	6000	8K	N
X	FUNWARE	DRIVING DEMON	0	6000	8K	N
NO	PHM3058	T.I. INVADERS	1	6000	—	N
	PHM3009	FOOTBALL	2	6000	—	N