Milwaukee
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HOCUS

a monthly publication of the
Milwaukee Area 99/4 User Group

HOME COMPUTER USERS SPOTLIGHT

FEBRUARY

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Forth Info.....Gene Hitz
Assembly SIG...Jerry Trinkl

Membership in the Milwaukee Area 99/4A U.G. is open to all interested in the solid performing Texas Instrument's 99/4A computer and the shared knowledge and good fun it provides.

Annual Dues.....Individuals - $10.00
.....Families - $15.00

We meet on the SECOND SATURDAY each month in the lower level of WAUWATOSA S&L located at 7500 W. State Street 1:00 to 4:00 P.M.

MARCH SHOW SET

The Wisconsin TI User Group Council is sponsoring a Swap/Meet and Faire

When - March 1 from 9:30 AM to 4:00 PM

Where - VFW Post at 726 Pine St.
Green Bay, WI

Admission - $1 per person $2 per family

Dealers contact: Sally and John Vandermus
633 Laura ST
Green Bay, WI 54302

Dealer times are from 8:30-5

Booths are $20 of which $10 is refunded if booth area is left in a clean state.

Bring extension cords and power strips as outlets are limited.

Payment can be made to: Bruce Murray
PO Box 1031
Fon Du Lac, WI
54935

Directions:

From Hwy. 41 take the Dousman St. exit, turn right on Dousman to Webster Ave.. Turn right on Webster 1 block to Pine St. then right on Pine 2 blocks to Hall.

From I-43 take the East Mason St. exit, turn left on E. Mason to Webster Ave. turn right on Webster 7 blocks to Pine St. then left on Pine 2 blocks to Hall.

TI PROGRAM IMAGE FORMAT

by Jerome Trinkl

Program format is the most efficient way to store programs on disk as well as being the fastest way to load them.

Any memory image, be it assembly or basic can be saved in program format. Memory image is nothing more than an exact copy of the code as it resides in memory.

TI's convention for distingushing among the two program format types are as follows:

Assembly language programs that load and run from option 5 of the E/A follow this format:

Note: (These bytes are not loaded but used to direct the loader.)

Ex: 1st file 1st 6 Bytes

0-1	>FFFF	Header tells loader there is another file to load.
2-3	>xxxx	No. of bytes max. >2000 (33 sectors max.)
4-5	>xxxx	Address to load those bytes

1st file next 4 Bytes

Note: (These bytes are loaded as part of the executable program.)

6-7	>0460	B @
8-9	>xxxx	Entry Address

Succeeding files contain:
(Again these do not load in memory)

0-1	>FFFF	if there are more files
	or >0000	if this is the last file
2-3	>xxxx	No. of bytes max. >2000
4-5	>xxxx	Address to load those bytes

The reason there are a maxiaum of >2000 bytes (or 33 sectors on disk) per file is that TI's loader uses the 16k VDP memory to transfer the data during the Device Service Routine. Only 8192 (8K)b have been allocated for its buffer.

One final note of interest is that option 5 of the E/A allows a default filename of "UTIL1" if enter is just pressed and no filename given. This is sort of like X-basic autoload 'LOAD' feature for assembly.

What about basic program format? It is a bit more complex but is easily distingushed on disk from assembly.

Program load bytes The first 8 bytes

0-1	>xxxx	Exclusive Or of next two words 2-3 and 4-5.
2-3	>xxxx	Address of the end of the line number table.
4-5	>xxxx	Address of the start of the line number table
6-7	>xxxx	Address of the last. memory location used in the program.

Line number table info next 2 bytes

8-9	>xxxx	The last line number in the program.
10-11	>xxxx	The start address of the program line.

Then comes the tokenized basic code.
I hope this helps your understanding of TI 99/4A program image format.

4A/TALK FEATURE

From Nov 1985 issue of Micropendium.

One excellent feature of [4A/Talk] is often overlooked....That feature is in the use of the capture buffer and keyboard files to pre-write messages for upload to the message input area of a BBS.

The procedure is as follows:

After the program has loaded and you have finished with the default screen you enter FCTN 3 for half duplex. Then enter FCTN 4 to open the capture buffer. Now you can write a message using 40 character lines and FCTN X for a CR/LF to advance to the next line. You can continue to write your message and when done you select FCTN 5 and option 1 to save the buffer to disk. Now, after signing on to a BBS you go to the message input area and enter the message header information. When you come to the area where you input the body of the message you may use one of two methods to enter the message. If the BBS system only allows you to enter one line at a time, like TIBBS, you do the following:

Select FCTN 6 and option 1, Open a keyboard file. Enter the filename that you gave your message and then press enter. Now press FCTN D twice with a pause in between. On the second entry the first line of your message will appear on the screen. Continue to press FCTN D and your message will be entered one line at a time. When done press enter and BBS's options to save, edit etc. will appear and you can choose the one you wish.

If you are on a board that allows block input for messages, like TBBS, then the procedure is as follows:

Input the message header information as before. Now select FCTN 6 and take option 3, Set up XON/XOFF characters and enter 17 for XON and 19 for XOFF. Now enter FCTN 6 again and select 1, Open a keyboard file. Enter the filename of your message file and press enter. Now the first time you enter FCTN D your entire message will be entered. To stop and start it as it is going in press FCTN D. When done press enter and select whatever option you wish.

Whether or not you select full or half duplex (FCTN 3) during this operation depends on whether the host has local echo on or off during the upload TBBS, for example, turns it off during unprompted block uploads so you must go half duplex. On most boards, however, full duplex is the proper selection. Using the above procedures you can also read other variable 80 files that you have downloaded from other systems. The use of the keyboard files section of 4A/Talk greatly increases its versatility.

One final note: with some modems you may have to experiment to find out how to get the text entry portion of the procedure to work. It works fine on the Radio Shack modem 1 and Volksmodem 12 modems I have but I had to put an on/off switch in the phone line for a friend of mine who uses a 300 baud Volksmodem. In any event, to see how the procedure works using any modem you can simply disconnect your modem from the RS232 if you have a problem with text entry and try it out. If you like the procedure, then you can do whatever is necessary to make it work with the modem hooked up.

Joe Nuvolini
Colorado Springs, Colorado

Converting RF Modulator For Universal Use

by Harold Hoyt

The RF Modulator can easily be modified to input video and audio signals to a video monitor or a VCR.

Pop the top cover off of the RF Modulator. Position an RCA stereo phono jack, Radio Shack part #274-332,on the corner of the cover where the cable enters the Modulator. Drill 2 holes for the pins of the connector. Make the holes large enough to allow position adjustment. Verify that the position is correct and drill 4 #29 drill holes using the phono jack as a template. Attach the phono jack to the cover. Chop off screws and cut the partition if required to avoid interference.

Find where the video and audio wires enter the printed circuit board (These are marked with the words video and audio on the top of the board). Drill a # 43 hole next to each of these leads from the copper side, being careful not to cut a trace. Cut and strip the ends of two short pieces of wire. Push the wire ends through the top of the board and solder the ends of the wires to the jacks.Replace the cover.

Plug in a stereo phono cord with male RCA phono plugs on each end. Code red for video and black for audio. This cord may then be plugged into either a VCR or video monitor.

This device may then be used either in the Monitor/VCR input without changing cords.

ERROR CODES

EXTENDED BASIC

10	NUMERIC OVERFLOW
14	SYNTAX ERROR
15	ILLEGAL AFTER SBRTN
19	NAME TOO LONG
20	UNRECOGNIZED CHAR
24	$/# MISMATCH
28	IMPROPERLY USED NAME
36	IMAGE ERROR
39	MEMORY FULL
40	STACK OVERFLOW
43	NEXT WITHOUT FOR
44	FOR-NEXT NESTING
47	MUST BE IN SBRTN
48	RECURSIVE SUBPGM CALL
49	MISSING SLEEP
51	RETURN WITHOUT GOSUB
54	STRING TRUNCATED
56	SPEECH # TOO LONG
57	BAD SUBSCRIPT
60	LINE NOT FOUND
61	BAD LINE #
62	LINE TOO LONG
67	CAN'T CONTINUE
69	COMMAND ILLEGAL IN PRGRM
70	ONLY LEGAL IN PRGRM
74	BAD ARGUMENT
78	NO PROGRAM PRESENT
79	BAD VALUE
80	NIL
81	INCORRECT ARGUMENT LIST
82	NIL
83	INPUT ERROR
84	DATA ERROR
97	PROTECTION VIOLATION
109	FILE ERROR
130	I/O ERROR
135	SBRTN NOT FOUND

I/O ERRORS

#	FIRST #	SECOND #
0:	OPEN	DEVICE NOT FOUND
1:	CLOSE	WRITE PROTECTED
2:	INPUT	BAD OPEN ATTRIBUTE
3:	PRINT	INVALID I/O COMMAND
4:	RESTORE	OUT OF SPACE
5:	OLD	EOF
6:	SAVE	DEVICE ERROR
7:	DELETE	FILE/DATA MISMATCH

RS 232c ERRORS

OPEN:	00	DEVICE CANNOT BE OPENED
	02	SOFTWARE SWITCH ERROR
	06	HARDWARE ERROR
INPUT:	24	INTERNAL DATA TOO LARGE FOR BUFFER
	26	'CLEAR' PRESSED OR HARDWARE ERROR
PRINT:	36	'CLEAR' PRESSED OR HARDWARE ERROR
OLD:	50	CAN'T LOAD FROM SPECIFIED DEVICE
	52	CAN'T USE SOFTWARE SWITCH WITH 'OLD'
	54	PROGRAM TOO LARGE TO LOAD
	56	SEE INPUT CODE 26
SAVE:	60	CAN'T SAVE TO SPECIFIED DEVICE
	62	SEE 02. CAN'T USE WITH SAVE
	66	SEE 26.
MISC::	43,73,83,93	EXECUTING ILLEGAL COMMAND

TI BASIC ERROR CODES PERTAINING TO DISK SYSTEM

#	FIRST #	SECOND #
0:	OPEN	CAN'T FIND SPECIFIED DISK DRIVE
1:	CLOSE	DISK OR PROGRAM IS WRITE PROTECTED
2:	INPUT	BAD OPEN ATTRIBUTE
3:	PRINT	ILLEGAL OPERATION
4:	RESTORE	DISK FULL OR TOO MANY FILES OPENED
5:	OLD	ATTEMPT TO READ PAST EOF
6:	SAVE	DEVICE ERROR
7:	DELETE	FILE ERROR
9:	EOF	

DISK MANAGER ERROR CODES

#	FIRST #	SECOND #
1:	OTHER	REC NOT FOUND
2:	SEEK/STEP	CYCLIC REDUNDANCY
3:	LOST	LOST DATA
4:	PRINT	WRITE PROTECT
5:	NIL	WRITE FAULT
6:	NIL	NO DISK DRIVE
7:	NIL	INVALID INPUT
8:	NIL	
9:	SPECIAL ERROR CODE FOR COMPREHENSIVE FDR	

FOR TI-WRITER

0	- INDICATES DISK CONTROLLER NOT ON; OR; DISKETTE NOT INITIALIZED.
6	- NO DISK IN DRIVE; OR; IS UPSIDE DOWN; OR; DRIVE IS NOT TURNED ON.
7	- NO DISK IN DRIVE.
00	- ILLEGAL USE OF LoadF, PrintF; OR; ERROR IN BEING FILES COMMANDS.
02	- NO FILE IN DISKETTE WITH FILENAME USED.
04	- DISK IS FULL.
06	- Print COMMAND IN PROGRESS WAS INTERRUPTED; OR; DISK DOOR WAS OPENED WHILE RED LIGHT WAS ON.
07	- INVALID FILENAME (I.E. NAME TOO LONG OR USING INVALID CHARACTERS).
15	INVALID DISK DRIVE NUMBER, OR DEVICE.

EXECUTION ERRORS

0-7	STANDARD I/O	11	BAD NAME	1B	FOR/NEXT ERROR
08	MEMORY FULL	12	CAN'T CONTINUE	1C	I/O ERROR
09	INCORRECT STATEMENT	13	BAD VALUE	1D	FILE ERROR
0A	ILLEGAL TAG	14	NUMBER TOO BIG	1E	INPUT ERROR
0B	STACK OVERFLOW	15	STRING-NUMBER	1F	DATA ERROR
0C	EOF DETECTION	16	BAD ARGUMENTNBER	20	LINE TOO LONG
0D	UNRESOLVED REF.	17	BAD SUBSCRIPT	21	MEMORY FULL
0E	INCORRECT STATEMENT	18	NAME CONFLICT	22-	UNKNOWN ERROR CODE
0F	PROGRAM NOT FOUND	19	CAN'T DO THAT		
10	INCORRECT STATEMENT	1A	BAD LINE NUMBER		

EDITOR/ASSEMBLER ERROR CODES

X.B. EQUATES

ERRNO	>0200	2	NUMERIC OVERFLOW
ERRSYN	>0300	3	SYNTAX ERROR
ERRILS	>0400	4	ILL. AFTER SBPRGM
ERRUQS	>0500	5	UNMATCHED QUOTES
ERRNTL	>0600	6	NAME-TOO-LONG
ERRSNM	>0700	7	$/# MISMATCH
ERRBSE	>0800	8	OPTION BASE ERROR
ERRDUV	>0900	9	IMPROPERLY USED NAME
ERRIM	>0A00	10	IMAGE ERROR
ERRMEM	>0B00	11	MEMORY FULL
ERRSO	>0C00	12	STACK OVERFLOW
ERRNWF	>0D00	13	NEXT WITHOUT FOR
ERRFNN	>0E00	14	FOR-NEXT NEXTING
ERRMSE	>0F00	15	MUST BE IN SBPRGM
ERRRSU	>1000	16	RECURSIVE SUBPRGM
ERRMS	>1100	17	MISSING SLEEP
ERRRWG	>1200	18	RETURN WITHOUT GOSUB
ERRST	>1300	19	STRING TRUNCATED
ERRBSS	>1400	20	BAD SUBSCRIPT
ERRSSL	>1500	21	SPEECH # TOO LONG
ERRLNF	>1600	22	LINE NOT FOUND
ERRBLN	>1700	23	BAD LINE NUMBER
ERRLTL	>1800	24	LINE TOO LONG
ERRCC	>1900	25	CAN'T CONTINUE
ERRILP	>1A00	26	ILLEGAL IN PROGRAM
ERRILP	>1B00	27	ONLY LEGAL IN PROGRAM
ERRBA	>1C00	28	BAD ARGUMENT
ERRNPP	>1D00	29	NO PROGRAM PRESENT
ERRBV	>1E00	30	BAD VALUE
ERRILA	>1F00	31	INCORRECT ARGUMENT LIST
ERRINP	>2000	32	INPUT ERROR
ERRDAT	>2100	33	DATA ERROR
ERRFE	>2200	34	FILE ERROR
ERRIO	>2400	36	I/O ERROR
ERRSNF	>2500	37	SUBPROGRAM NOT FOUND
ERRPV	>2700	39	PROTECTION VIOLATION
ERRINV	>2800	40	UNRECOGNIZED CHARACTER
WRNNO	>2900	41	NUMERIC OVERFLOW
WRNST	>2A00	42	STRING TRUNCATED
WRNNPP	>2B00	43	NO PROGRAM PRESENT
WRNINP	>2C00	44	INPUT ERROR
WRNIO	>2D00	45	I/O ERROR

LOADER ERROR CODES

0-7	STANDARD I/O
8	MEMORY OVERFLOW
9	NOT USED
10	ILLEGAL TAG
11	CHECKSUM ERROR
12	UNRESOLVED REF.

```
>>>  TI-WRITER Printer Controls  <<<
Use with Editor (forget the Formatter)
    Written for Gemini 10
```

Code	Function	Editor codes
00	Terminate Tabulation	Ctrl U Shift 2 Ctrl U
07	Buzzer Sounds	Ctrl U Shift G Ctrl U
08	Backspace	Ctrl U Shift H Ctrl U
09	Horizontal Tabulation	Ctrl U Shift I Ctrl U
10	Line Feed	Ctrl U Shift J Ctrl U
11	Vertical Tabulation	Ctrl U Shift K Ctrl U
12	Form Feed	Ctrl U Shift L Ctrl U
13	Carriage Return	Ctrl U Shift M Ctrl U
14	Enlarged Characters till CR	Ctrl U Shift N Ctrl U
15	Condensed Characters On	Ctrl U Shift O Ctrl U
17	Select Printer	Ctrl U Shift Q Ctrl U
18	Condensed Characters Off	Ctrl U Shift R Ctrl U
19	Disable Printer	Ctrl U Shift S Ctrl U
20	Enlarged Characters Off	Ctrl U Shift Y Ctrl U
27	Escape (ESC)	Ctrl U Fctn R Ctrl U

Printer Settings using ESC with code

27;45	Underline On	ESC	-	1
27;45	Underline Off	ESC	-	0
27;48	Line Space 1/8"	ESC	0	
27;49	Line Space 7/72"	ESC	1	
27;50	Line Space 1/6"	ESC	2	
27;51	Line Space n/16"	ESC	3	n
27;52	Italics On	ESC	4	
27;53	Italics Off	ESC	5	
27;56	Ignore 'Paper Out'	ESC	8	
27;57	Enable 'Paper Out'	ESC	9	
27;60	Unidirectional Line Print	ESC	<	
27;64	Reset Default Settings	ESC	@	
27;65	Line Feed Space n/72"	ESC	A	n
27;66	Set 8 Vertical Tabs	ESC	B	n1 n2
27;67	Form Length to n Lines	ESC	C	n
27;68	Set 12 Horizontal Tabs	ESC	D	n1 n2
27;69	Emphasized Print On	ESC	E	
27;70	Emphasized Print Off	ESC	F	
27;71	Double Strike On	ESC	G	
27;72	Double Strike Off	ESC	H	
27;75	Single Density Graphics	ESC	K	
27;76	Double Density Graphics	ESC	L	
27;77	Elite Print On	ESC	M	
27;78	Skip Perforation (n Lines)	ESC	N	(n)
27;79	Skip Perforation Off	ESC	O	
27;80	Elite Print Off	ESC	P	
27;81	Right Margin at n	ESC	Q	n
27;82	Select n Int'l Char Set	ESC	R	n
27;83	Subscript Print On	ESC	S	1
27;83	Superscript Print On	ESC	S	0
27;84	Sub/Superscript Print Off	ESC	T	
27;85	Unidirectional Print On	ESC	U	1
27;85	Unidirectional Print Off	ESC	U	0
27;87	Double Width Print On	ESC	W	1
27;87	Double Width Print Off	ESC	W	0

Insert lines wherever codes are desired.
Enter codes on line ending with CR.
Print it out !!!

```
100 !!!!!!!!!!!!!!!!!!!!!!!!!
110 !!                       !!
120 !!    DON'T LABELS       !!
130 !!                       !!
140 !!  BY  RON RUTLEDGE     !!
150 !!  CENTRAL IOWA U.G.    !!
160 !!                       !!
170 !!!!!!!!!!!!!!!!!!!!!!!!!
180 !$=CHR$(1)
190 @$=CHR$(0)
200 E$=CHR$(27)
210 L$=E$&"W"&!$
220 U$=E$&"-"&!$
230 OPEN #1:"PIO"
240 PRINT #1:E$&"E"&L$&U$&"DO NOT BEND"
250 PRINT #1:E$&"W"&@$&" FLOPPY DISK ENCLOSED"
260 PRINT #1:L$&U$&"DO NOT XRAY"
270 PRINT #1: : : :
280 CALL KEY(0,K,S)
290 IF S=0 THEN 280
300 CLOSE #1
```

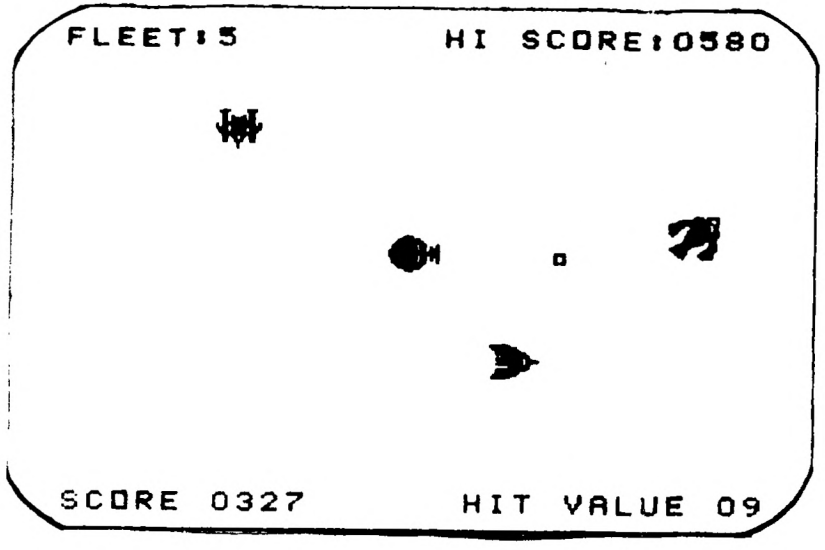
DO NOT BEND
FLOPPY DISK ENCLOSED
DO NOT XRAY

DO NOT BEND
FLOPPY DISK ENCLOSED
DO NOT XRAY

Computer Dictionary Addendum

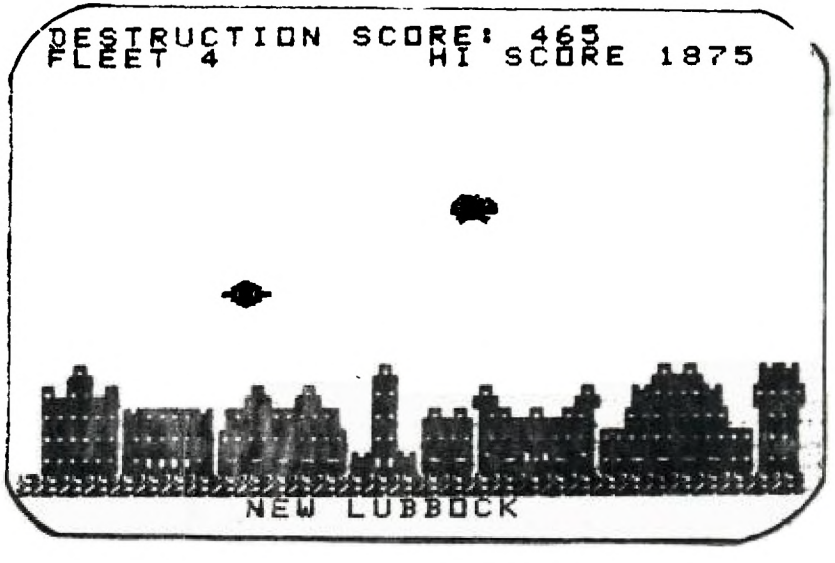
BIT : Decribes computers, as in "Our computer cost quite a BIT."
BUG : What friends do to you when you brag about your computer.
BYTE : What your eyes do after staring at a screen too long.
CHIPS : Used to insert into DIP while working at your computer.
COPY : What you do at school after playing PARSEC all night.
CURSOR : What you become after your computer breaks down.
DISK : What slips in your back after hours sitting at a terminal.
DUMP : Where all your other hobbies go after buying a computer.
ERROR : Made when you walked into a computer store "just to look"
EXPANSION UNIT : The room you add to the house for your computer.
FLOPPY : The condition of a user's muscles after awhile.
HARDWARE : Rakes, mowers and other things not touched all summer.
MENU : What you'll never see cause now you're too poor to eat out.
PROGRAM : You used to watch on TV before computer was hooked to it.
RAM : What you do to your computer when it stops working.
RETURN : What you do to your computer when RAM doesn't work.
WINDOW : What you throw your computer thru when you can't RETURN it.

Arcade Action Software
4122 N. Glenway
Wauwatosa, WI 53222



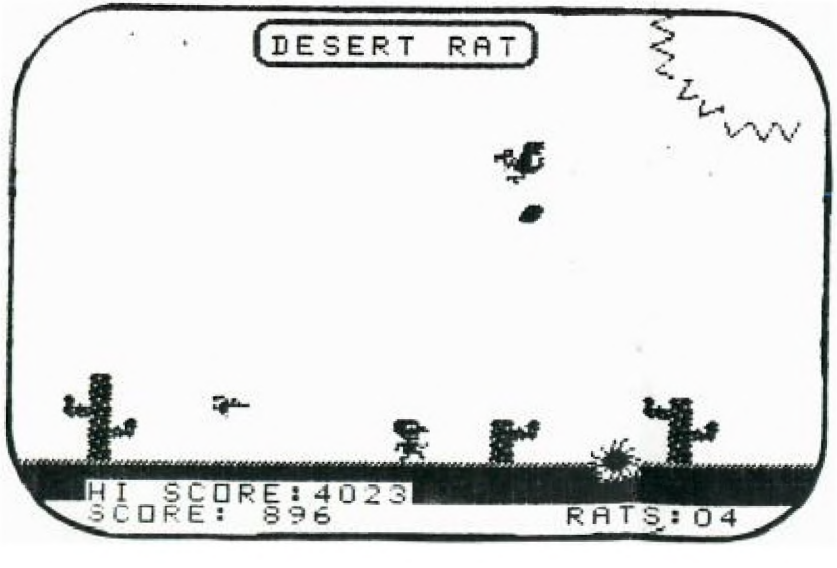
* KLINGN ATTACK *

You control 5 sattelites on their lonely vigil deep in outer space, guarding civilizations' far perimeters from alien exploitation.



* KLUUTO EMPIRE *

With your fleet of 5 laser armed cruisers, destroy the 6 imperial cities of the insidious Kluutonian Empire, defended only by robot-drone Death Ships.



* DESERT RAT *

To survive the rigors of the desert, you must jump over the tumbling tumble weeds, duck the low flying woodpeckers, and shoot the vulture eggs dropping from above.
You'll need good joysticks for this one.

$10 each
3/$20
American $

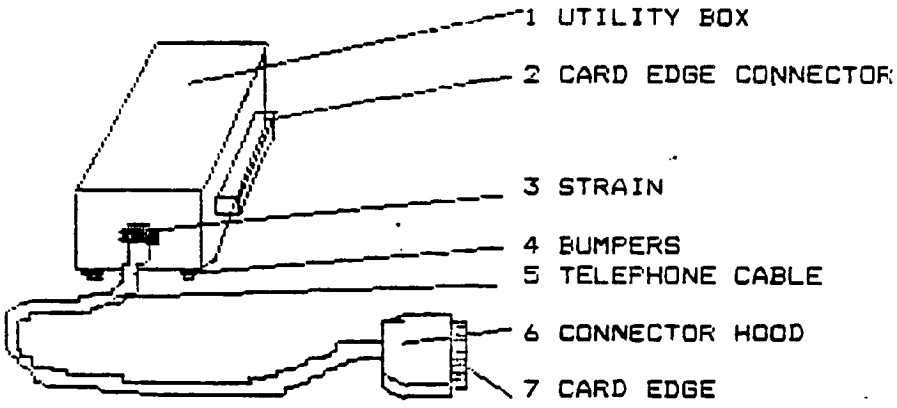
CABLE BOX

by Jim Edwards (SFV 99ers)

One feature of the T.I.99 that has never been hard for me to criticize was the physical size and design of the peripheral cable and connector. It always seemed to take up an undeserved portion of desk space. With only a goal in mind and virtually no "hardware saave", I set out to alleviate the problem. It seemed a simple task to build a compact connector that would plug in without disturbing the original components. Actually, the most difficult aspect of the project was rounding up the parts.

That proved to be an education. Card edges and their matching connectors have several configurations.. For example 22/44 means that it has 22 conductors on both sides. Spacings vary as well: .10, .125, .156, etc. This refers to the distance between the centers of the conductors. This project requires 44 conductors (22 on a side) with .10 centers. Finding a card edge connector was difficult enough, but finding the male counterpart was impossible. A section was literally cut out of an abandoned board.

I found most of the parts at Pacific Radio while the card was found in a card board box at All Electronics. Obviously, the exact parts may vary but be certain of the number of conductors and spacing. Once everything is rounded up, simply solder the wires together making sure to match one end to the other. Optionally, an interupt switch can be added for those screen dump programs that require one.



#	PART	MANUFACTURER	PT.#	COST
1	UTILITY BOX	CALRAD	90-785	$2.10
2	CARD EDGE CONNECTOR	GC ELECTRONICS	41-875	$4.74
3	STRAIN			.25
4	1/4" BUMPERS	RUSSELL IND.	REC-207SH	$1.79
5	50 CONDUCTOR TELEPHONE CABLE			
6	CONNECTOR HOOD	GC ELECTRONICS	41-1003	$2.48
7	CARD EDGE SCAVANGED FROM PC BOARD			$1.50
				$12.86

Alive and Kickin'

Several years ago Texas Instruments develoPed a home computer called the 99/4A. It didn't nave all the bells and whistles of a *Macintosh* or an *IBM-AT;* however, at one point you could buy 50 99/4As for the same price as one *Macintosh*. Consequently, TI sold quite a few (over 2.5 million in the United States alone). Because of competition and continued loss of revenue, TI was forced, in early 1983, to abandon its interests in the home computer market. This left the 99/4A without a parent company for support—an orphaned computer.

However, because the machines were very reliable and the market penetration widespread, the 99/4A survived its infancy and is coming of age in 1985.

Since TI did not encourage third-party development of products for the 99/4A, the transition was not an easy one for its users or developers. Large companies like Atari-Soft and Imagic continued to develop new products for a short time, but few of the smaller companies were able to survive the landslide effect of unsold TI products being dumped at below cost prices.

As the dust settled over the next eight to 10 months, a second generation of 99/4A developer began to emerge. Cor Comp on the West Coast and Myarc on the East gained recognition as quality manufacturers of advanced expansion products for the 99/4A. Navarone Industries, who had weathered the storm with products like Console Writer and the Cartridge Expander, is still a major force in the development of new products for the 99/4A.

Owners of 99/4As began developing a network of dedicated user groups, sharing ideas at monthly meetings, and passing the word around that the TI 99/4A was still alive and growing. The number of user groups grew to over 300 with some metropolitan clubs reporting memberships of over 2,000. With such a revival taking place in the TI community, you would think that computer magazines would be having a heyday with news stories, product reviews, and advertising. However, every major publication that had supported the 99/4A abandoned it almost as abruptly as TI. As new developers emerged so did new magazines. *MICROpendium* and *Mini-Mag 99*, along with numerous newsletters generated by user groups, have become the communication medium for the 99/4A.

The TI-99/4A user base is one of the largest and most dedicated of any computer today, and their numbers are continuing to grow. People are awakening to the fact that the $50 computer they bought a few years ago is more expandable and powerful than ever before. Not only have the users pooled their efforts, but some developers have been working together to provide better, more compatible products for the 99/4A. Cor Comp and Navarone have, for some time, been developing companion hardware and software products for the 99/4A.

The TI-99/4A is definitely alive and kicking! There's a groundswell of support that promises to make the 99/4A an exciting and productive tool for years to come.

—From a letter by
W.F. Hadley
Navarone Industries
Sonora, California
Telephone (209) 533-8349

October 1985 Directions (TI PRC Mag.)

DOES THIS SOUND FAMILIAR ?

TIPC Owners Everywhere—Unite!

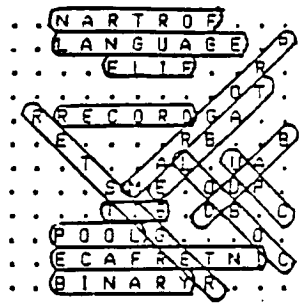
There was a collective sigh of relief when TI introduced the *Business-Pro* and thus, reaffirmed its determination to stay in the PC market. There had been an increasing concern among many Texas Instruments Professional Computer (TIPC) owners that their favorite PC might become an orphan. That concern has been clearly dispelled.

During the "Dark Winter" of 1984-85, there were many suggestions given in various publications to try to improve TI's market condition. What surprised me was the lack of suggestions from TI computer owners. The limited success of the TIPC is probably mostly by word of mouth, so one would expect a greater use of this resource.

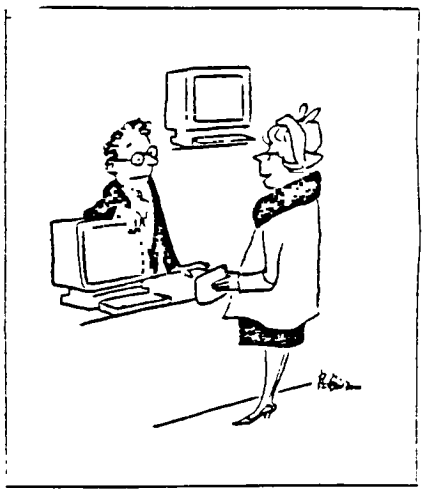
By letting our fellow users know about our favorite computer, it is possible to make a powerful impresssion, especially when *IBM* PCs appear to be falling like flies.

ANSWERS TO PUZZLE LAST MONTH

The words for definitions in order are:
BAUD BINARY BIT CPU COBOL FORTRAN FILE RECORD TABLE REGISTER PROGRAM LANGUAGE LOOP INTERFACE



FOR SALE
2-SCHUGART FHF1250 EACH $125.00
1-POWER SUPPLY $75.00
1-EPSON RX/80 PRINTER NEW
IN BOX $200.00
ALL FOR $500.00
CALL JOHN (818)891-4921



"I want to get my husband a computer, but I want a dumb one - I wouldn't dare get him anything smarter than he is."

N E W Y O R K

```
100 A=40 :: DIM B(40),C(40),D(40),E(37),F(37),A$(37),G(3)
,H(2),I(9),J(9)
110 RESTORE :: CALL CLEAR :: CALL CHARSET :: CALL SCREEN
(15):: K=100 :: FOR L=0 TO 40 :: B(L)=0 :: NEXT L :: M=0
 :: N=0 :: O=0 :: FOR L=32 TO 44 :: READ B$ :: CALL CHAR
(L,B$):: NEXT L
120 DATA "55AA55AA55AA55AA","AA55AA55AA55AA55","55AA55FF
FF181818","54A454A757A45454","18181SFF00AA55AA"
130 DATA "1818181818181818","000000FFFF","1818181FFFF1818
18","FFFFFFFFFFFFFFFF"
140 DATA "0F0F0F0F0F0F0F0F","F0F0F0F0F0F0F0F0","00000000
FFFFFFFF","FFFFFFFF"
150 FOR L=48 TO 95 :: CALL CHARPAT(L,B$):: CALL CHAR(48+
L,B$):: NEXT L :: CALL COLOR(1,16,2):: CALL COLOR(2,6,2)
:: FOR L=3 TO 8 :: CALL COLOR(L,2,7):: CALL COLOR(6+L,2,
4):: NEXT L
160 CALL HCHAR(5,1,38,32):: CALL HCHAR(13,5,38,24):: CAL
L HCHAR(20,1,38,32)
170 CALL VCHAR(1,5,37,24):: CALL VCHAR(5,13,37,9):: CALL
 VCHAR(5,20,37,16):: CALL VCHAR(1,28,37,24):: FOR L=1 TO
 17 :: READ P,Q,R :: CALL HCHAR(Q,P,R):: NEXT L
180 DATA 13,4,34,20,4,34,5,5
,39,13,5,39,20,5,39,28,5,39
190 DATA 4,13,35,5,13,39,13,
13,39,20,13,39,28,13,39,29,1
3,33,13,14,36
200 DATA 5,20,39,20,20,39,28
,20,39,20,21,36
210 FOR L=0 TO 37 :: READ E(
L),F(L),A$(L):: CALL HCHAR(F
(L),E(L),ASC(A$(L))):: NEXT
L
220 DATA 4,3,A,27,3,B,7,4,C,
15,4,D,22,4,E,30,4,F,3,6,G,1
1,6,H,18,6,I,25,6,J
230 DATA 6,7,K,14,7,L,21,7,M
,29,7,N,4,11,O,12,11,P,19,11
,Q,27,11,R
240 DATA 7,12,8,15,12,T,22,1
2,U,11,14,V,18,14,W,26,14,X,
5,15,Y,21,15,Z,29,15,0
250 DATA 4,18,1,19,18,2,27,1
8,3,7,19,4,22,19,5,30,19,6,3
,21,7,18,21,8,26,21,9,6,22,<
,29,22,>
260 B$="NEW YORK" :: DISPLAY
 AT(2,6):B$:: FOR L=1 TO 8 :: CALL HCHAR(2,17+L,ASC(SEG
$(B$,L,1))+48):: NEXT L :: D
ISPLAY AT(16,7):"I'LL HAVE":
: DISPLAY AT(17,6):"100 POIN
TS":: RANDOMIZE :: DEF S(P)
=INT(RND*P)
270 G(0),H(2)=1 :: G(1),H(3)
=-1
280 FOR L=0 TO A :: T=D(L)::
 GOSUB 820 :: IF T=0 THEN 37
0
290 P=B(L):: Q=C(L):: IF T A
ND 1 THEN P=P+1 :: U=43 :: V
=44 :: W=38 :: X=0 :: Y=1 ::
 IF P>32 THEN 400
300 IF T AND 2 THEN P=P-1 ::
 U=44 :: V=43 :: W=38 :: X=0
 :: Y=-1 :: IF P<1 THEN 400
310 IF T AND 4 THEN Q=Q+1 ::
 U=42 :: V=41 :: W=37 :: X=-
1 :: Y=0 :: IF Q>24 THEN 400
320 IF T AND 8 THEN Q=Q-1 ::
 U=41 :: V=42 :: W=37 :: X=1
 :: Y=0 :: IF Q<1 THEN 400
330 IF T AND 16 THEN 380
340 IF T AND 32 THEN 480
350 IF T AND 64 THEN W=39 ::
 T=T-64 :: D(L)=T :: K=K+10
360 GOTO 410
370 NEXT L :: GOTO 570
380 CALL GCHAR(C(L)+Y,B(L)+X
,Z):: IF Z>95 THEN D(L)=(T O
R 32)AND NOT 16 :: GOTO 410
390 K=K-1 :: GOTO 370
400 K=K+25 :: D(L)=0 :: GOTO
 470
410 CALL GCHAR(Q,P,[):: IF [
=U OR [=40 THEN K=K-1 :: GOT
O 370
420 CALL GCHAR(Q+Y,P+X,@):: 
IF @<>32 THEN D(L)=T OR 16
430 IF [=V THEN U=40
440 CALL GCHAR(C(L),B(L),[):
: IF [=40 THEN W=V
450 IF [=32 THEN D(L)=0 :: K
=K-100 :: GOTO 370
460 CALL HCHAR(Q,P,U)
470 CALL HCHAR(C(L),B(L),W):
: B(L)=P :: C(L)=Q :: GOTO 3
70
480 CALL GCHAR(Q,P,@):: IF @
=U THEN 370
490 IF @<>39 THEN 550
500 [=0 :: FOR J=0 TO 3 :: @
=2^J :: CALL GCHAR(Q+H(J),P+
G(J),_):: IF NOT(_=38 OR _=3
7)THEN [=[ OR @
510 NEXT J
520 _=2^S(4):: IF (_ AND [)=
0 THEN D(L)=_ OR 64 :: GOTO
460
530 IF [=15 THEN 370 ELSE 52
0
550 D(L)=0 :: IF @<>32 THEN
I(O)=P :: J(O)=Q :: O=O+1 ::
 K=K-100
560 U=32 :: CALL SOUND(4000,
-6,0):: GOTO 460
570 IF D(N)=0 THEN 600
580 N=N+1 :: IF N>A THEN N=0
 ELSE 700
600 @=S(4):: D(N)=2^@ :: ON
@+1 GOTO 610,620,630,640
610 B(N)=1 :: GOTO 650
620 B(N)=32 :: GOTO 650
630 C(N)=1 :: GOTO 670
640 C(N)=24 :: GOTO 670
650 IF S(2)=1 THEN C(N)=5 ::
 GOTO 700
660 C(N)=20 :: GOTO 700
670 IF S(2)=1 THEN B(N)=5 ::
 GOTO 700
680 B(N)=28
700 IF K<0 THEN K=0
710 DISPLAY AT(17,5):USING "
####":K;:: IF K=0 THEN 760
720 M=M+1 :: IF M>100 THEN 7
60
730 IF S(25)>0 OR O=0 THEN 7
50
740 CALL HCHAR(J(O),I(O),39)
:: FOR L=0 TO 9 :: J(L)=J(L)
+1 :: I(L)=I(L)+1 :: NEXT L
:: O=O-1
750 GOTO 290
760 IF K=0 THEN CALL SOUND(4
000,-1,0):: GOTO 780
770 FOR L=1 TO 5 :: CALL SOU
ND(1000,698,0):: CALL SOUND(
1000,784,0):: CALL SOUND(100
0,880,0):: NEXT L
780 DISPLAY AT(2,6):"PLAY AG
AIN ? Y N Y ":: ACCEPT AT(2
,23)SIZE(-1)VALIDATE("YN"):C
$ :: IF C$="Y" THEN 110
800 CALL CLEAR :: CALL CHARS
ET :: PRINT "YOU HAVE";K;"PO
INTS" :: END
820 CALL KEY(0,I,R):: IF R<>
1 THEN RETURN
830 IF I>64 AND I<91 THEN \=
I-65 :: GOTO 880
840 IF I>47 AND I<58 THEN \=
I-22 :: GOTO 880
850 IF I=44 THEN \=36 :: GOT
O 880
860 IF I=46 THEN \=37 :: GOT
O 990
870 RETURN
880 CALL GCHAR(F(\),E(\),[);
: IF [>95 THEN ]=[-48 ELSE ]
=[+48
900 CALL HCHAR(F(\),E(\),]):
: CALL SOUND(-200,1047,0)::
RETURN
```

TIPS FROM THE TIGERCUB

#27

TIGERCUB SOFTWARE
156 Collingwood Ave.
Columbus, OH 43213

The entire contents of Tips from the Tigercub Nos. 1 through 14, with more added, are available as a full disk of 50 programs, routines and files for just $15.00 postpaid.

>>>>>>NOW AVAILABLE<<<<<<<<<

Tips from the Tigercub VOLUME 2 The entire contents of Tips Nos. 15 through 24, with 64 routines and files, also $15.00 postpaid.

Or both for $27 postpaid.

>>>>ALSO NOW AVAILABLE<<<<<<

New Catalog #6, for $1 which is deductable from your first order. Describes 140 original programs for only $3 each (plus $1.50 per order for casette or disk, package and postage).

If you have my previous catalog, the following are now available in Extended Basic versions - Fast Addition Practice, Submarine Hunt, Rithmatik, Wawaland (also now available in Basic with Speech), Long Division Cryptograms, Miss Spell, Scramoulation, Bargraffer, Squinch, Dry Gulch, Name That Tune, Scrum, Midnight Trail, Nimbo, Kindertimes, Optical Illusion, Bazoo, Synonymy, Speeder Reader, Changeroo, Glunk, Fraction Math, Three Buckets Puzzle, Roman Numbers, Match A Patch, Kinderminus, I & E Spelling, Casting Out Nines, Haunted Graveyard, Spalling Teecher, Homonymy, Antonymy, Old -Timer Puzzle, Ten Thousand Sights, Mechanical Aptitude Test, Junior Speeder Reader, and Bars and Balls.

Due to reduced prices for disks and mailers, the PPM charge is now $1.50 for either disk or casette - BUT PLEASE BE SURE TO SPECIFY WHICH!

And my best seller - NUTS & BOLTS, a full disk of 100 (yes, I said 100) utility subprograms in MERGE format, ready for you to merge into your own programs. 13 type fonts, 14 text display routines, 9 wipes, 8 pauses, 3 programming aids, 9 data saving and reading routines, 5 graphics routines, 4 time and date, 6 music, 12 sorts and shuffles, 2 printer aids, 4 key and joystick, 4 math, 2 protection and 7 miscellaneous, plus a tutorial on subprograms. With documentation, example of using each subprogram. All for only $19.95 postpaid.

I have been receiving several requests to publicize freeware which is sometimes good but sometimes of doubtful usefulness, quality, originality or even legality! And "Freeware! Send $10 and initialized disk" is not freeware, it's somebody trying to get a free ad! So - no more freeware mentions! I am also not going to mention commercial products - after all, I'm publishing this at my own expense to promote my own software! However, I do owe a mention to Larry Hughes of Quality 99 Software, because in Tips #22 I recommended that disks with fractured files should not be copied with a quick copier. Larry informed that his trademarked QUICK-COPYer is the only program of its kind on the market that does un-fracture files. He sent along a copy to prove it, and it does just that. A very useful feature!

Now, here is the new, and final, version of the Tigercub Menu Loader.

```
100 !by A. Kludge/M. Gordon/
T. Boisseau/J. Peterson/etc.
Version #5, 9/85
110 CALL PEEK(8198,A):: IF A
<>170 THEN CALL INIT
120 OPTION BASE 1 :: DIM P$(
127),V(127,3):: CALL LOAD(-
31806,16):: ON ERROR 130 ::
GOTO 160
130 DISPLAY AT(12,9)ERASE AL
L:"I/O ERROR" :: RUN 100
140 @,@@,A,A$,B,C,D$,FLAG,I,
J,K,KD,KK,M,M$,N$,NN,P,P$,P$
$(),PP,PP$,Q$,S,ST,T$(),TT,V
T,V(,),W$,X,X$,Y,K2,S2
150 CALL LINK :: CALL PEEK :
: CALL KEY :: CALL SCREEN ::
 CALL COLOR :: CALL CLEAR ::
 CALL VCHAR :: CALL SOUND ::
 !@P-
160 CALL CLEAR :: CALL LOAD(
8196,63,24B):: CALL LOAD(163
76,67,85,82,83,79,82,48,8)
170 CALL LOAD(12288,129,195,
126,165,129,153,102,60)
180 CALL LOAD(12296,2,0,3,24
0,2,1,48,0,2,2,0,8,4,32,32,3
6,4,91):: CALL LINK("CURSOR"
)
190 CALL CLEAR :: FOR S=1 TO
 14 :: CALL COLOR(S,7,16)::
NEXT S :: CALL COLOR(0,2,16)
200 T$(1)="d/f" :: T$(2)="d/
v" :: T$(3)="i/f" :: T$(4)="
i/v" :: T$(5)="pro" :: ON WA
RNING NEXT
210 IMAGE ###
220 IMAGE ###  Quit
230 IMAGE ###  Delete
240 IMAGE ###  Print
250 IMAGE ###  Rescan
260 CALL SCREEN(5):: CALL VC
HAR(1,31,1,96):: DISPLAY AT(
1,4):"TIGERCUB MENU LOADER"
270 ! IF YOU HAVE MORE THAN
ONE DISK DRIVE, DELETE THE !
 IN LINE 200 AND THE FIRST S
TATEMENT IN 210
280 ! DISPLAY AT(12,6):"DISK
? (1-3):" :: ACCEPT AT(12,19
)SIZE(-1)VALIDATE("123"):D$
:: D$="DSK"&D$&"."
290 D$="DSK1." :: OPEN #1:D$
,INPUT ,RELATIVE,INTERNAL ::
 INPUT #1:N$,A,J,K :: DISPLA
Y AT(1,2)SIZE(27):SEG$(D$,1,
4)&" - Diskname= "&N$;
300 DISPLAY AT(2,2):"Availab
le=";K;"Used=";J-K:" Prog Fi
lename Size  Type":"---- ---
------- ---- -------" :: I,V
T=0 :: TT=J-K
310 FOR X=1 TO 127 :: IF X/2
0<>INT(X/20)THEN 340
320 DISPLAY AT(24,1):"Choice
? Enter for more 0" :: ACCEP
T AT(24,24)VALIDATE(DIGIT)SI
ZE(-3):K :: IF K=0 THEN 330
:: IF K>0 AND K<NN+1 THEN 60
0 ELSE 320
330 X=1
340 I=I+1 :: IF I>127 THEN K
=X :: GOTO 510
350 INPUT #1:P$,A,J,B :: NN=
NN+1
360 IF LEN(P$)=0 THEN 430
370 DISPLAY AT(X+4,1):USING
210:NN :: DISPLAY AT(X+4,5):
P$ :: P$(NN)=P$ :: DISPLAY
AT(X+4,16):USING 210:J :: DI
SPLAY AT(X+4,20):T$(ABS(A))
380 V(NN,1)=A :: V(NN,2)=ABS
(B):: V(NN,3)=J
390 X$="  "&STR$(B):: DISPLA
Y AT(X+4,24):SEG$(X$,LEN(X$)
-2,3):: VT=VT+J
400 IF A>0 THEN 410 :: DISPL
AY AT(X+4,28):"Y"
410 CALL KEY(0,KK,ST):: IF S
T=0 THEN 420 :: FLAG=1 :: GO
TO 430
420 NEXT X
430 DISPLAY AT(X+4,1):USING
220:NN :: DISPLAY AT(X+5,1):
USING 230:NN+1
440 IF VT=TT OR FLAG=1 THEN
460 :: DISPLAY AT(2,25)SIZE(
4):VT
450 FOR @=1 TO 10 :: DISPLAY
 AT(2,25)SIZE(1):CHR$(30)::
DISPLAY AT(2,25)SIZE(1):" "
:: CALL SOUND(-99,110,0,-4,0
):: NEXT @
460 IF FLAG=1 THEN 470 :: DI
SPLAY AT(X+4,13):USING 240:N
N+2 :: DISPLAY AT(X+5,13):US
```

```
ING 250:NN+3
470 DISPLAY AT(X+6,1):"    C
hoice?" :: ACCEPT AT(X+6,16)
SIZE(-3)VALIDATE(DIGIT):K
480 IF FLAG=1 THEN 500
490 IF K=NN+2 THEN 840 ELSE
IF k=NN+3 THEN CLOSE #1 :: N
N=0 :: GOTO 190
500 IF K<>NN AND K<>NN+1 THE
N 590
510 IF K=NN THEN CALL CLEAR
:: CLOSE #1 :: END
520 DISPLAY AT(X+5,12)SIZE(1
2):" #?" :: ACCEPT AT(X+5,15
)SIZE(2)VALIDATE(DIGIT):KD :
: IF KD<1 OR KD>NN THEN 520
530 IF V(KD,1)>0 THEN 550
540 FOR J=1 TO 10 :: DISPLAY
 AT(11,1):" ":"  PROTECTED -
 CANNOT DELETE":" " :: DISPL
AY AT(12,1):" " :: NEXT J ::
 GOTO 570
550 DISPLAY AT(X+6,1)SIZE(27
)BEEP:" Verify - Delete ";PG
$(KD);"?" :: DISPLAY AT(X+6,
28)SIZE(1):"Y" :: ACCEPT AT(
X+6,28)SIZE(-1)VALIDATE("YN"
):Q$ :: IF Q$<>"Y" THEN 570
560 DELETE D$&PG$(KD)
570 CLOSE #1
580 CALL VCHAR(1,3,32,672)::
 NN=0 :: X=0 :: FLAG=0 :: GO
TO 260
590 IF K<1 OR K>127 OR LEN(P
G$(K))=0 THEN 430
600 IF ABS(V(K,1))=5 OR ABS(
V(K,1))=4 AND V(K,2)=254 THE
N 640
610 DISPLAY AT(12,1)ERASE AL
L:"Print to ? S": :"(P)printe
r?":"(S)creen?" :: ACCEPT AT
(12,12)SIZE(-1)VALIDATE("PS"
):Q$ :: IF Q$="S" THEN PP=0
:: GOTO 630
620 DISPLAY AT(12,1)ERASE AL
L:"PRINTER? PIO" :: ACCEPT A
T(12,10)SIZE(-18):P$ :: OPEN
 #3:P$ :: PP=3
630 CALL CLEAR :: CALL SCREE
N(16):: ON ABS(V(K,1))GOTO 6
80,690,750,760
640 CLOSE #1 :: IF SEG$(PG$(
K),LEN(PG$(K)),1)="*" THEN D
ISPLAY AT(12,1)ERASE ALL:"RE
TURN TO BASIC AND LOAD BY":"
TYPING OLD ";D$&PG$(K):: STO
P
650 CALL PEEK(-31952,A,B)::
CALL PEEK(A*256+B-65534,A,B)
:: C=A*256+B-65534 :: A$=D$&
PG$(K):: CALL LOAD(C,LEN(A$)
)
660 FOR I=1 TO LEN(A$):: CAL
L LOAD(C+I,ASC(SEG$(A$,I,1))
):: NEXT I :: CALL LOAD(C+I,
0)
670 CALL VCHAR(1,3,32,672)::
 CALL SCREEN(8):: FOR S=0 TO
 14 :: CALL COLOR(S,2,1):: N
EXT S :: DISPLAY AT(12,2):"L
OADING ";A$ :: GOTO 900
680 OPEN #2:D$&PG$(K),INPUT
,FIXED :: GOTO 700
690 OPEN #2:D$&PG$(K),INPUT
700 LINPUT #2:M$ :: PRINT #P
P:M$ :: IF EOF(2)THEN 730
710 CALL KEY(0,K,S):: IF S=0
 THEN 700
720 CALL KEY(0,K2,S2):: IF S
2<1 THEN 720 ELSE 700
730 CLOSE #1 :: CLOSE #2 ::
PRINT "   >>>press any key<<
<" :: IF Q$="P" THEN CLOSE #
3
740 CALL KEY(0,K,ST):: IF ST
<1 THEN 740 ELSE 580
750 OPEN #2:D$&PG$(K),INPUT
,INTERNAL,FIXED :: J=0 :: GO
TO 770
760 OPEN #2:D$&PG$(K),INPUT
,INTERNAL :: J=0
770 IF EOF(2)=1 THEN 730 ::
J=J+1 :: INPUT #2:M$ :: IF L
EN(M$)=8 THEN 790
780 PRINT #PP:M$ :: GOTO 820
790 FOR Y=1 TO 8 :: @@=ASC(S
EG$(M$,Y,1)):: IF @@<32 OR @
@>127 THEN 810
800 NEXT Y :: GOTO 780
810 RESTORE #2 :: FOR X=1 TO
 J-1 :: INPUT #2:M$ :: NEXT
X :: INPUT #2:M :: PRINT #PP
:M
820 CALL KEY(0,K,S):: IF S=0
 THEN 770
830 CALL KEY(0,K2,S2):: IF S
2<1 THEN 830 ELSE 770
840 DISPLAY AT(24,1):"PRINTE
R NAME? PIO" :: ACCEPT AT(24
,15)SIZE(-14):PP$ :: OPEN #2
:PP$ :: PRINT #2:SEG$(D$,1,4
)&" - Diskname= "&N$
850 PRINT #2:RPT$("*",28):"A
vailable=";358-VT;"Used=";VT
:RPT$("^",28)
860 PRINT #2:"FILENAME  SIZE
   TYPE":RPT$("_",28)
870 FOR P=1 TO NN-1 :: PRINT
 #2:PG$(P);TAB(15);V(P,3);TA
B(20);T$(ABS(V(P,1)));TAB(25
);V(P,2):: NEXT P :: CLOSE #
2
880 DISPLAY AT(12,3)ERASE AL
L:"(P) to print again":" (R
) to rescan":" (Q) to quit"
890 ACCEPT AT(15,4)VALIDATE(
"PQR")SIZE(-1)BEEP:Q$ :: IF
Q$="P" THEN 840 :: CLOSE #1
:: NN=0 :: IF Q$="R" THEN 19
0 ELSE END
900 RUN "DSKX.1234567890"
```

This version turns off the Quit key, restarts itself rather than crashing on an I/O error, and has pre-scan for faster start-up. It displays disk name, sectors available and sectors presumably used - it also totals up actual sectors used and sounds a warning if any sectors are not accounted for.

It lists up to 127 programs and files by number, filename, number of sectors, program or file type, file record length, and write-protection. It will stop for menu selection on any keypress or at the end of each screen, continuing on Enter. It will load and run any program that can run from Extended Basic, displaying its filename while loading. If the filename ends in an asterisk, it will warn you to return to Basic. It will delete any unprotected program or file, after first requiring verification by filename, or will inform you if the file is protected. It will read any readable file, including internal numeric, and list it to screen or printer. It will dump a catalog of the disk to your printer, and it will offer the option of quitting or rescanning the disk or another disk. And it's free, I don't even want a freeware donation - but I would appreciate if you would take a look at my catalog and see if, somewhere among those 140 programs, there might be something you would be willing to pay $3 for? The Menu Loader is included as a bonus on every disk I sell!

```
100 CALL CLEAR :: RANDOMIZE
:: DISPLAY AT(3,4):"TIGERCUB
 MATH PUZZLE"
110 DISPLAY AT(6,1):"Insert
+, -, * (multiply) OR / (div
ide) between the  digits
to equal the total": :"Type
Q to give up"
120 DISPLAY AT(12,1):"Level
1 or 2?" :: ACCEPT AT(12,15)
VALIDATE("12"):L$
130 T,X=INT(9*RND+1):: M$=ST
R$(X):: Z$=M$&" "
140 FOR J=1 TO 4 :: Y(J)=IN
(9*RND+1):: Z=INT(4*RND+1)::
 ON Z GOSUB 240,250,260,270
:: Z$=Z$&STR$(Y(J))&" " :: N
EXT J
150 IF L$="1" AND T<>INT(T)T
HEN 130 :: Z$=Z$&"="&STR$(T)
160 DISPLAY AT(12,1):Z$ :: D
ISPLAY AT(18,1):" " :: DISPL
AY AT(20,1):" " :: DISPLAY A
T(22,1):" "
170 P=2 :: FOR J=1 TO 4 :: A
CCEPT AT(12,P)VALIDATE("Q+-*
/")SIZE(1):S$
180 IF S$="Q" THEN 200 ELSE
IF S$="+" THEN X=X+Y(J)ELSE
IF S$="-" THEN X=X-Y(J)ELSE
IF S$="*" THEN X=X*Y(J)ELSE
X=X/Y(J)
190 P=P+2 :: NEXT J :: IF X=
T THEN 230 :: DISPLAY AT(18,
1):"WRONG!"
200 DISPLAY AT(20,1):"ANSWER
 IS ";M$
210 DISPLAY AT(22,1):"PRESS
ANY KEY"
220 CALL KEY(0,K,ST):: IF ST
<1 THEN 220 :: GOTO 130
230 DISPLAY AT(18,1):"RIGHT!
" :: GOTO 210
240 M$=M$&"+"&STR$(Y(J)):: T
=T+Y(J):: RETURN
250 M$=M$&"-"&STR$(Y(J)):: T
=T-Y(J):: RETURN
260 M$=M$&"*"&STR$(Y(J)):: T
=T*Y(J):: RETURN
270 M$=M$&"/"&STR$(Y(J)):: T
=T/Y(J):: RETURN
```

Enjoy!

Jim Peterson

TI FORTH International
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4122 Glenway Street
Wauwatosa WI 53222

Tutorials	UG source	Pages	On
Beginning	MSP	3	
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Parameters	Dimensions	1	
FileTranV80	Milwaukee	1	III
Arrays	Milwaukee	3	
DS-DD	Milwaukee	1	VII
Autodecimal	Milwaukee	1	III
Stack Use	Kentucky	1	
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Grid-Plot doc.	C.A.F.I.G.	2	V
4th-RITER screens	selfmade	1	V
System A documentation		5	

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TI FORTH System Disk
FORTH Source Code 'A'
FORTH Source Code 'B'
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