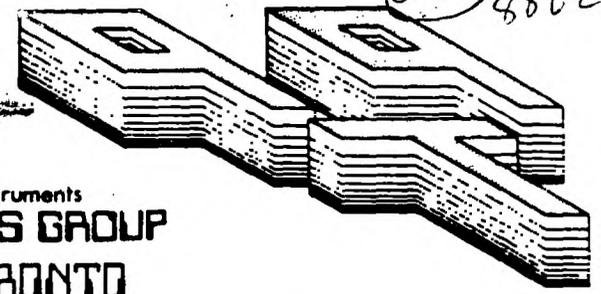


062/4802



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FOR THE TI-99/4A COMPUTER
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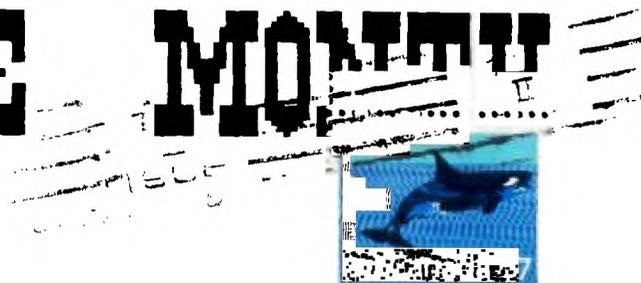
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DISK OF THE MONTH



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CANADA

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TO: P. O. Box 11983
Edmonton, AL T5J 3L1

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All memberships are household memberships. An newsletter subscription is only for those who do not wish to attend meetings, but wish to receive our newsletter and have access to our library. You are welcome to visit one of our general meetings before joining the group. If you wish more information contact either our president, in writing, at the club address on the front cover or phone him.

The meetings are usually held on the last Saturday of each month, unless stated otherwise. Consult this issue of Newsletter 9T9 for the date and time of the next meeting. Meetings are held in the main auditorium of the Gregory Public Library, in the city of York, from 9:30 AM to 1:00 PM. The library is located at 120 Trounfall Ave., 5 blocks south of Eglinton Ave., 1/2 Block East of Keele St. Our BBS, The TI Tower BBS & (416)921-2731, 300;1200BPS, 24 hrs.

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THE FOLLOWING CAME FROM DELPHI, AND WAS MODIFIED TO HIGHLIGHT 9T9 USERS GROUP MEETINGS FOR 9T9 DATES TO REMEMBER

JANUARY							FEBRUARY							MARCH							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
					1	2			1	2	3	4	5	6			1	2	3	4	5
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31																					

APRIL							MAY							JUNE							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
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10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	
17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	
24	25	26	27	28	29	30	29	30	31					26	27	28	29	30			

EDITED BY STEVE MICKELSON



the martian comicals



"HELLO! MR. OAKRIDGE? I UNDERSTAND YOU'RE THE GUY WHO WROTE THE SOFTWARE I USE AT WORK!"

TId Bits #16

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Though February is a short month, even in a leap-year, there is much happening in the TI World, as you can see in this issue.

We have several great additions to our club library, see Andy's ad and the Gary's listing. Gary has written a new loader which will go from A/L to console BASIC, a feat some members argued could not be done without a system reset. His loader will successfully load the new Archiver V2.4, (as will E/A), whereas the Systex loader just locks-up. This supports the contention that Blair recently made that alot of software that seemed not to run in the Geneve's GPL environment, may be a result of using the systex loader, instead of E/A or another loader, such as Gary's. This loader will be used to replace the SYSTEX-type loader for all DOM's, (Disks Of the Month).

A report from Breman, West Germany, indicates that our European counterparts have been active. It seems that alot of interesting hardware is being generated there; some parallel to what is being developed in North America, and alot quite unique.

Keeping in mind that many members have an interest in the unexpanded TI, either as a primary or secondary system, I hope to include a regular "Back to Basics" column, which will have an article and/or program for this type of TI enthusiast. In this issue, we have a book review cum program, by Jack Sughrue, which I downloaded, along with several other's.

I recently paid a visit, one Saturday, to Neil's place and saw a half dozen of our club members working on horizon RAMdisks. For some, this their second drive. I understand that the 7.3 version of the Horizon O/S is more reliable for the MEGabyte HRD's. To do a memory test, the TI mini-memory module is required. I have included, a article on upgrading the Supercart to 16K of switchable RAM, (two banks of 8K). There is a further upgrade, i.e. the addition of a Mini Memory GROM, with a switch. Hopefully we can include this modification to the newsletter, at a later date, as our club has one of this hybrid Supercarts.

A reminder to all our readers that the Ottawa TI Fest, returns on Saturday, March 5, 1988. This, the third annual Fest, will be again held at Merivale High School, Nepean, Ontario. This would be a perfect opportunity to meet many fellow TI-ers and to see and buy the latest in software/hardware. For more information contact Jane Laflamme, chairperson, at (613)837-1719 (home) or (613)745-2225 (work).

I will not be at the next meeting, I will be out of town, but am leaving the meeting in the capable hands of Neil and the rest of the executive. I do plan to be back at March. I understand that they have some interesting demonstrations planned. See you next month!

THIS COMES FROM COMPUSERVE... **Back to Basics**

STIMULATION TEXTWARE, SOFTWARE, and ELSEWHERE Goings-on with the TI-99/4A

-By JACK SUGHRUE

One of the good feelings I have about STIMULATING SIMULATIONS FOR THE TI-99/4A by C.W.Engel (105 pp, Hayden Book Company, Hasbrouck Heights, N.J., \$7.95) is the assumptions the author makes about the reader. He assumes you want to type in programs to get programs into your library. That's obvious. That's why we plunk down the bucks. (About 53 cents a program, by the way.)

But Engel assumes further that you're going to take the time and trouble to figure out how the simulations are created and you're going to enhance them to suit your own needs. He's right, too.

Once you start into this book, it is hard not to begin adding, fiddling, manipulating, deleting, changing. And it's easy because of the excellent structure. Each of the simulations begins with a scenario explaining the program. Many of these scenarios have charts and diagrams which I found lucid and helpful and, in some cases, absolutely essential.

The scenarios (running from two short paragraphs to 14 long ones) are followed by sample runs. These printouts show how the program operates (or how it should operate if yours has bugs). This is followed by a list of all the variables used (I wish all program books would do this.) and by a complete program listing ready for typing. These in turn are followed by two batches of modifications: minor and major. Toughies, these. There is usually an illustration or game board or display interspersed among the items above. They add to the overall nice effect, and, in some instances, are required for play.

The final item in each section is a flowchart of the simulation. I'm not a big flowchart person (no more than I approve of outlines for papers), but as they come after all the other stuff, they do prove helpful in understanding the process of the program. It does make it easier to understand, too.

We'll follow one through in a couple minutes, but first I want to discuss the programs and the book.

The book is 6X9, a decent size. The text type is tiny, so I'm glad I have bifocals. (When I bought this book last year, I didn't have bifocals, so I couldn't deal with it and its relationship to distant keyboard, screen, printer, and so on. Thanks to Good Ol' Charlie Aitchue, I have overcome. Have dug out book. Have enjoyed.

Except for a few things.

One, I hate computer books without ring binders.
Two, I loathe T.I. books which do not have their listings in resequenced order by 10s.
Three, I despise books which aren't carefully proofread in the listings (They should just be printed out directly from the program with LIST "PIO" or LIST "RS232". What's so hard about that? The books are all offset anyway, so the publisher can be guaranteed a perfect copy.

And STIMULATING SIMULATIONS is guilty on all three counts. But forgetting the bad stuff for a moment, in addition to the above goodies, which most program-listing books do not have, this one starts off with two pages which describe each of the programs in the book in a clear paragraph which includes the number of lines. Hey! Here's one that's only 63 lines. Sounds good, too. I'll do that one first and the 225 liner last. Can't do that with any other books.

Be wary, Future Purchaser. You are not buying a book of arcade games here. They are not loaded with graphics and cutesy melodies and neon lights. You can add the whistles and grunts yourself later. Along with the flying orangutans. But they aren't there in these programs. Here is what is there:

3 Soccer Programs (requiring Extended BASIC) [The other 12 may run in BASIC or X.]
Art Auction - Buy and sell paintings to make a profit.
Monster Chase - A graphic maze-like (not too much thinking) chase.
Lost Treasure - A short simulation of treasure finding on a map/grid.
Gone Fishing - Catch lots of fish; avoid storms, wrecks, etc.
Space Flight - Deliver medical supplies to distant planet.
Forest Fire - Extinguish a forest fire with backfires and chemicals.
Nautical Navigation - Navigate sailboat to 3 different islands.
Business Management - Maximize profits by clever use of buying and finishing raw materials.
Rare Birds - Identify as many birds as possible. This is weird.
Diamond Thief - You find museum diamond thief from 5 suspects.
The Devil's Dungeon - This one's been around for a long time. It's a fantasy adventure in a bottomless cave full of poison gases, monsters, demons, and gold. What one won't do for gold!
and
Life - "Beginning as an uneducated bum whose only source of income is mugging, the player advances through education and luck to become an executive who earns lots of money." I would have said that if Engel didn't.

Interesting selection of simulations, eh?

Let's look into one: Gone Fishing. (Not my favorite, but a good one.)

You're going on a fishing trip. You may use the 8X8 grid in the book to place markers on. You travel N,S,E,W, or F (to stay fishing in the same place or square). If you keep fishing the same spot you will not succeed, as each square has a predetermined density. Moving can cause unexpected events (not good) to happen. Fishing too long will probably result in your being caught in an afternoon storm. You don't want to get too far from the dock, as you have a time limit, but the bigger fish are out in the farthest reaches of the pond.

Decisions. Decisions. That's what simulations are all about.

You can change anything, of course. Grid size could make things easier or harder. Line 30 sets the probability of catching fish within a square. Line 40 sets the maximum density of fish in a square. Line 150 sets the maximum time for fishing. Storms - Line 330. Rating scale as fisherman - 540.

Major changes could be to add different kinds of hazards (whales, reefs, UFOs); utilize sonar devices to help locate fish; use fuel to run the boat; and so on.

The fun with this book is what happens AFTER you've typed in the program.

Here's GONE FISHING as a sample. I'd like to make a challenge to the reader to create the best adaptation/enhancement possible with this simple program. Add anything you want. Be ingenious. Mail your tape or disk to me (It will be returned.): Jack Sughrue, Box 459, East Douglas, MA 01516. I will try to get it printed in a magazine or newsletter for you and will donate all adaptations to the Public Domain through user groups.

The sample program from SS has been RESequenced for easier typing in. There are (and, quite honestly, better) programs in the book, but the challenge to all our programmer/readers is to come up with the best superversion you can create.

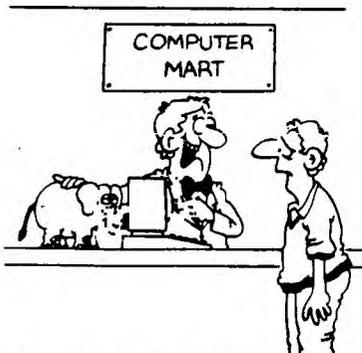
```
100 REM +++ GONE FISHING +++
110 W!M +++ STIMSIM +++
120 W!M SET PROBABILITIES AN
D DENSITY
130 DIM P(8,8),D(8,8)
140 RANDOMIZE
150 CALL CLEAR
160 CALL SCREEN(13)
170 FOR I=1 TO 8
180 FOR J=1 TO 8
190 P(I,J)=.7*RND
200 D(I,J)=INT(RND*5+1)
210 NEXT J
220 NEXT I
230 P(1,1)=0
240 LB=0
250 R=1
260 C=1
270 REM MAIN LOOP
280 FOR T=0 TO 6 STEP .1
290 PRINT
300 IF (RND>P(R,C))+D(R,C)<
1)THEN 310 ELSE 330
310 PRINT " NO BITES!":
:
:
320 GOTO 390
330 N=INT(RND*D(R,C)+1)
340 W=INT(RND*R*C)+1
350 LB=LB+N*W
360 PRINT
370 PRINT " YOU CAUGHT";N;"
xDFISH,"
380 PRINT " EACH WEIGHING";
W;"LBS.,"
390 PRINT " AT LOCATION";R;
C
400 PRINT : : : "TOTAL LBS. T
HIS TRIP IS";LB;
410 PRINT : : :
420 REM UNEXPECTED EXPIERIEN
CES
430 IF RND<T/60 THEN 440 ELS
E 460
440 PRINT "STORM--LOST 1/2 H
OUR": : : :
450 T=T+.5
460 J=INT(100*RND)+1
470 IF J>4 THEN 490
480 ON J GOSUB 820,910,990,1
050
490 PRINT " YOU HAVE FISHED
FOR";T;"HOURS.": : : :
500 INPUT "MOVE(N,S,E,W,F,B)
? ":MS
```

```
510 IF M$="E" THEN 520 ELSE
530
520 C=C+1
530 IF M$="N" THEN 540 ELSE
550
540 R=R-1
550 IF M$="W" THEN 560 ELSE
570
560 C=C-1
570 IF M$="S" THEN 580 ELSE
590
580 R=R+1
590 IF M$="B" THEN 600 ELSE
610
600 GOTO 120
610 IF (R<1)+(R>8)+(C<1)+(C>
8)THEN 620 ELSE 640
620 PRINT "GROUNDED--SUNK!!"
: : : "ALL HAS BEEN LOST!!!
!": : : :
630 GOTO 770
640 IF (R=1)*(C=1)THEN 700 E
LSE 650
650 NEXT T
660 PRINT "TIME UP! THE SUN
HAS SET.": : :
670 PRINT "1/2 YOUR CATCH HA
S SPOILED.": : : :
680 LB=LB/2
690 FFM SUMMARY OF TRIP
700 Ii T=0 THEN 710 ELSE 730
710 PRINT "STILL AT DOCK": :
:
720 GOTO 150
730 PRINT "YOU ARE BACK AT T
HE DOCK"
740 PRINT "AFTER";T;"HOURS O
F FISHING."
750 PRINT "CLEAN";LB;"LBS. O
F FISH."
760 PRINT "YOU RATE";INT(LB/
5);"AS A FISHERMAN."
770 PRINT : : :
780 INPUT "ANOTHER TRIP? ":X
$
790 IF X$="Y" THEN 140
800 END
810 REM SUBROUTINE
820 IF R+C<9 THEN 900
830 PRINT "FISH SCARED OFF B
Y SHARK."
```

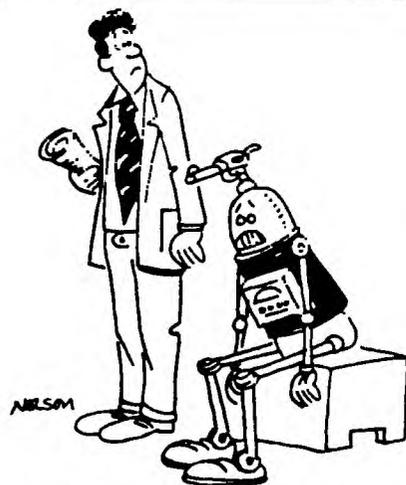
```

840 PRINT "NOT BITING AS OFT
EN."
850 FOR I=1 TO 8
860 FOR J=1 TO 8
870 P(I,J)=P(I,J)-.1
880 NEXT J
890 NEXT I
900 RETURN
910 PRINT "SEA GULLS ATE SOM
E OF YOUR BAIT."
920 PRINT "CATCH WILL BE SMA
LLER THIS TRIP."
930 FOR I=1 TO 8
940 FOR J=1 TO 8
950 D(I,J)=D(I,J)-1
960 NEXT J
970 NEXT I
980 RETURN
990 PRINT "WATER SPOUT DISPL
ACES YOU."
1000 R=INT(8*RND+1)
1010 C=INT(8*RND+1)
1020 PRINT "YOU ARE NOW AT L
OCATION";R;C
1030 T=T+.2
1040 RETURN
1050 PRINT "YOU CAUGHT A 50-
LB. SHARK."
1060 LB=LB+50
1070 PRINT "TOTAL LBS. THIS
TRIP IS";LB;". "
1080 RETURN

```



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REPORT: BREMAN TI FAIR

TI FAIR IN BREMAN, WEST GERMANY, DOWNLOADED FROM COMPUSERVE.

[A translation of "Bremen rief zum TI-Treffen", TI-REVUE (HOME COMPUTER AKTIV), Nr. 12/1-Januar, 1988, pp. 34ff. Translated and uploaded with permission of HCA.]

We receive precious little information about the goings-on of the TI community in Europe. If you have ever attended a TI fair, the following article should sound familiar.

After the successful fair in Cologne in November, 1986, the TI User Group of Bremen undertook the task of organizing this event. And in spite of the gradually decreasing number of TI fans, the Bremen users succeeded in outshining the meeting in Cologne. This should in no way diminish the achievement of the TI-Workshop in the Rhineland of last year, but what was offered TI fans this time in the community center of Obervieland was absolutely top notch.

The first participants, who travelled from Austria, the Netherlands and Belgium, as well as West Germany, arrived late Friday in Bremen.

Punctually at 10:00 on Saturday the official portion of the Second International TI-Fair began. Everything that could quicken the heart of a TI freak was shown. Here was proved once again -- in defiance of all gloomy forecasts -- that the TI 99/4A was far from dead but rather was enjoying the best of health in its rebirth both in software and hardware. Many things which were inconceivable during the "Texas times" belong today to the standards of this still fascinating system. The possibilities which this computer offers seem inexhaustible in spite of its almost biblical age.

Few people made use of the offer to display the activities of their clubs in a video projection, thus visitors who wanted information had to visit the individual stands, where of course even complex questions could be handled in detail.

The 80-column card which was introduced last year in Cologne is on the way toward shedding its childhood diseases thanks to the help of the TI-Workshop-Rhineland. Also software, for example Multiplan and TI-Mac, a new word processing program, has in the meantime become available for this useful expansion. I was especially impressed with a board separation program, which I never would have thought possible of the TI in this excellent form. But as the campaign slogan of the Rhinelanders states, "Nothing is impossible." Let's hope that the people from Cologne and vicinity continue to be so successful in uncovering the secrets of the TI.

But there are naturally various other clubs which have dedicated themselves to the inner life of this computer. The User Club of Berlin has reworked GROM 0 from the bottom up. In doing so they were able to sensibly shorten some routines, thereby making them faster. They also have extended this GROM from 6K to a total of 8K and have placed a genuine lower case character set, among other things, in the operating system. Also new from Berlin is the Editor/Assembler module Version 4, which like the original is programmed completely in GPL. The accompanying programs must no longer be loaded from DSK1. Loading is now possible from DSK1 to DSK5. This module now sensibly contains a catalog

program. Further, the user now has nine new BASIC commands at his disposal. As one can see, even the secret of the TI99 never surrendered by Texas Instruments -- the GPL programming language in the GROM's -- is no longer a hurdle today. An example of this are the GPL reports by Sven Dyroff which have appeared in TI-REVUE for some time.

The Panorama Computer Club of Duisburg brought among other things a model train setup on which a locomotive, guided by a TI 99/4A and a homemade interface (a 32-bit input/output card which is also offered separately), seemed to develop its own intelligence. To provide for better understanding, the prototype of this setup demonstrated here functioned with loudly clicking relays. The same thing is also possible with semiconductors, which then will naturally function quietly. One could also see here a battery-backed DSR board which makes possible the construction and testing of user-written Device Service Routines. The Baunatal TI-Club had given some thought to how one can improve cooling under the cartridge port of the TI 99/4A. At this point consoles become noticeably hot after some time. And since the presence of heat has an effect on the life span of the semiconductors, many a TI user can profit from this idea. [No details given.- Tr.]

Another novelty in Bremen was the 512K ramdisk of the TI-Workshop Wiesbaden. Unfortunately, the software for this card for the PEB had not been finished on time, thus the possibilities of this expansion could be only partially demonstrated. But anyone who knows his way around DSR routines knows how much work it involves. Some weeks will pass before the operating system of this card (which can be up to 32K) will be finished. But then this card, which is outfitted with a hardware clock, should offer all possible comfort. It is at present already possible, for example, to define up to 254 devicenames by which lacking peripheral devices can be simulated (e.g. TP or DSK6).

Likewise from the Rhine-Main area came the members of the System 99 User Group. The TI friends from Frankfurt showed that the TI 99/4A is noticeably faster with a change of the clock speed from 3 Megahertz to approximately 3.5 Megahertz. Some had put their computers into new housings and had provided them with new keyboards so that the good old TI 99/4A was no longer recognizable. But this club also had something to offer on the software side. The flight simulator SPAD/13-Mark2, a graphics program, and a new copy program were shown.

The one who travelled furthest was a member of the TI Club of Vienna. After he had some difficulty getting his setup through customs, he was able to demonstrate some worthy programs for his GRAM-Karte. Unfortunately, the situation is that there are several different kinds of GRAM expansions which are not compatible with one another. Perhaps the clubs should agree on a single standard so that they can at least exchange software.

We should not fail to mention the other clubs which had travelled from Kiel, Essen, Munich, the Netherlands and Belgium in order to show their new software and hardware items. There were also vendors present. One could view the successor to the TI 99 at one's leisure, the Geneve 9640 by Myarc, introduced for the first time last year in Cologne. The computer consists of a card for the PEB of the TI 99/4A to which an IBM-like PC keyboard is connected. The disk controller and the RS232 card can be used as before; the 32K card is superfluous and must be removed from the box, since the computer itself already has 512K of memory. (Those who already had their 32K expansion in the TI 99 console will then have together with the Extended BASIC cartridge a complete second unit, for even this expanded BASIC is already supplied in the Geneve.) An expansion of this computer up to a total of 2 megabytes is possible. Unfortunately the price of approximately 1200 D-Marks for the basic version is rather high.

Another new item which was shown in Bremen was an "IBM compatible" TI 99/4A. Of course here the limits of the Texan showed up, which functioned practically only as a keyboard for a Turbo-XT. After the start of the program the TI showed only a switched-off screen. The program ran then exclusively on the XT, which also delivered the appropriate picture on its monitor.

Finally, two exotic items from the "TI family" should not go unmentioned. The first was a glass TI, available to be admired at the Bremen User Group table. The entire computer still consisted of the original TI boards, but was housed in a transparent box so that one could admire its inner life in all its beauty. Sven Dyroff from the TI Workshop Wiesbaden had gone one step further. He had disassembled a TI into all its individual parts, had modified them according to his own ideas, and had then rebuilt them on normal strip boards, which he then had screwed onto a wooden board. And although this construction looked more like the waste basket of an electronics workshop than a computer, the miracle occurred and the builder was able to show his TI to the astonished public.

Those who were interested not only in new items but also old accessories for their TI 99/4As were also well provided for. The flea market taking place at the same time offered many a person the opportunity to get long sought accessories for his system at good prices. Here there was virtually everything from modules to complete systems with fully expanded PEB's. Disk drives, from the old SSSD TI drives with 90K to a complete drive system with two D:DD drives with connections as DSK2 and DSK3 were available. Memory expansion with 8 or 16 bit data bus, K:232 cards, disk controllers and other accessories were available in every conceivable configuration. Even defective equipment which might be of interest to hobbyists was available for a good price. So everyone could get his money's worth.



"This isn't my lunchbox! Don't you know a diskette box when you see one?"



As must be expected at such a meeting, software exchange was the center of interest. The multiplicity of programs for the TI99 is well known. For this reason I will not discuss details. Anyone interested in information about specific programs should get in contact with one of the TI clubs. Since there is a gigantic supply of freeware for the TI 99, almost any problem can be solved. However, on the subject of freeware a serious word must be said. In Bremen one could see that sometimes the passing on of these programs was coupled with the purchase of a diskette at a steep price. Folks didn't get these programs copied onto a disk they had brought; they had to buy a new one. And it clearly contradicts the freeware concept when people try to make a profit in this way on programs which others have written and have placed at the disposal of TI fans for free. This is not to say that one should not sell programs he has written himself, but with freeware which others have thought up, that is out of order. Right? I would be interested in your opinion about this. Contact me through the HCA-Mailbox and write me your opinion. You can reach me in this box under BONGO, you can also write your opinion to board 34.

Now back to the TI Fair. Those participants who went home right after the official end of the event at 6:00 missed something. The high point of the cheerful evening was the cold buffet prepared by the women of the Bremen User Group. There is no purpose in relating anything about this, you simply had to be there. Without hesitation I can add my thanks to those spoken by representatives of the individual clubs that evening. The Panorama Club of Duisburg, which will hold the fair next year, will have a hard time reaching the level of Bremen's fair, much less surpassing it. Which of course should not hinder the Duisburgers from the attempt.

Stelter/Kaiser
Translation by Wayne Stith 1/29/88

9T9 LIBRARY

Compiled by Gary Bowser on Feb.11, 1988

Coming Soon: Turbo Pascal, South Pacific Album.
DOM for FEB '88 : 1988 calendar, Super-Mail, Cashflow, TI-KEYS, Wheel of Fortune

=====
Library disks are \$2 each. DOM's 'Disk of the month' are \$3. Prices are a buck less if you supply the disk. All disks DOMs are available the following ways:
1: All club meetings. 2: By mail with a list of disks and a cheque/money order/
3: By calling Gary Bowser at 960-0925 arranging to pick them up at his place.
=====

=====
DISK CODE: A)rtist S)peech util's U)tilities C)atalogs soft/hard
G)ames J)unk misc. I)nstructions H)ome finance P)rogram langs/help
M)usic E)ducation D)isk manips W)ord manips T)erm ems/help/BBS's
=====

TYPE CODE : TEXT-Dis/Var 80 EA -Editor/Assembler and 32K
MP -Multiplan FRTH-Forth lang. EAXB- (E/A or Extended Basic) and 32K
MM -Mini Memory TE2 -Term Em. II XB -Extended Basic
ART -pictures 9640-MYARC 9640 XB32-Extended Basic with 32K
SIZE is the number of disks needed. VER. is the version of the program. DATE is when this VER. was added to the library. Ones marked OLD are ready for deletion on next update of library.

DISK	PROGRAM	SIZE	TYPE	VER.	DATE	
A001	ART2PICTS	>>>>	ART	>>>>	02/11/88	TI-ARTIST pictures (24 disks so far) <
A009	AUTO CAD	1	EA			Computer assisted drawing
A010	GPPH JACKET	1	XB			Prints a disk jacket using a GRAPHX
A011	JET SPKITE	2	XB			Sprite builder program
A012	JP GRAPHIC	1	FRTH		OLD	FORTH drawing program and demo
A013	MAX RLE	2	EA		OLD	Displays special graphics with samples
A014	POSTER#01	1	XB		OLD	Selection of printer art
A015	TASS 2001	1	XB32	2.10	09/29/87	Tri Artist Slide Show 2001 (Gary Bowser)
A020	PICASSO	1	EAXB		11/16/87	Desktop Publisher
A025	PIX-SHOW	1	XB32		02/11/88	Picture show from XB (8 color pictures)
C002	FREWARE	1	TAXT		OLD	A freeware catalog
D004	REDISK	1	EAXB		OLD	Disk copy program for TI Corcomp
D005	DISKU	1	EAXB	4.0a	12/09/87	Disk manager/editor/reporter
D "	SUPERCAT	-	EAXB			Disk cataloger program
D "	ARCHIVER	-	EAXB	2.4	02/11/88	Archiver II with CHIP a small manager
G001	CHINACHESS	1	XB			A new game using icon control!
G002	CRAPS	1	XB32			Crap Game (very good game)
G003	FRENZY	1	EAXB		OLD	Space game very well done
G004	MONOPOLY	1	XB			Plays like the board game
G005	MS ADVEN	1	XB32			Text adventure game
G006	OIL INVAS	1	FRTH		OLD	Oil Invasion (a game in forth)

DISK	PROGRAM	SIZE	TYPE	VER.	DATE	
G007	TI99'OPOLY	1	XB32		OLD	A well done version of Monopoly
G008	TRIVIA99er	1	XB32			Trivia Game
G009	WIT GAMES	3	XB			Scrabble type games
G010	WORD WIZ	1	XB32			A word game with text to speech
G011	IC-SAMPLER	2	EAXB		02/11/88	Infocom sampler of their adventure games
G012	TOD*BASES	2	EAXB		02/11/88	Tunnels of Doom with 10 games so far
G013	FROG	1	XB32		02/11/88	Frog jump type game from MicroPendium
G014	CHAINLINK5	1	XB32	5.0	02/11/88	Solataire type game by Walt Howe
H001	CHECK BOOK	1			OLD	Cheque Book and Budget Management
H002	FAST TRANS	2				Checkbook Recapper/planner
H003	MP-BUDGET	1	MP		09/29/87	Budget template for Multiplan
H004	PR BASE	3		2.1	11/16/87	A good personal data base program
H005	VCR-DB	1				A Database for your VCR Tapes
H006	RECORDS/+	1	XB32		12/09/87	Data Base type program (Records Plus)
H007	AMORTIZAT	1	XB		08/16/87	AMORTIZAT by Jiri Svoboda (9T9 UG)
H008	CFS	3	XB32	5.0	02/11/88	Creative Filing System by Mark Beck
H009	TI-LEDGER	1	XB32	1.2	02/11/88	Same as AUTOMATIC ACCOUNT on the IBM PC
I001	FORTH DOCS	5	TEXT		OLD	Forth Manual on disk (incomplete)
I002	TI REWRITE	1	TEXT			Helper file for TI-WRITER commands.
M001	4thMUSIC	1	FRTH			Music or Graphics Demo in Forth
M003	MUSIC#01	1	EA		OLD	Selection of EA Music
M004	SORGAN	1	EA			Makes Keyboard an organ
M	" AXLE F	-	EA			Music (Beverly Hills Cop)
M005	XMMUSIC#--	>>>>	XB	>>>>	12/09/87	XB music disks (5 disks so far) <
M010	MUSIC-MAN	1	XB32		02/11/88	The MUSIC MAN album
P001	HEXAS	2	XB32			Editor Assembler on Disk Version
P002	SIAR	1	XB32			Super TI Assembly Routines for XB
P003	TI FORTH	1	EA			TI FORTH programming language
P004	TI PILOT	2	EA			TI PILOT programming language
P005	TOOL KIT	1	XB32			A set of programming utilities
P006	cBASIC	2	EA		OLD	cBasic Language Compiler
P007	P-SAMPLER	1			11/16/87	Sample of different languages for the TI
P008	XB*TOOLS	1	XB32		11/16/87	Tools to assist the Extended Basic
P009	EDP	1	XB32		11/16/87	Enhanced Display Package
S001	SPEECH/01	1	TE2		09/29/87	Selection of speech programs (singing)
S002	TEXT=SPEECH	1	XB32		02/11/88	Text-To-Speech
T001	FT/OM/MT	2	EAXB	----	12/09/87	Fast-Term, Omega, Mass-Transfer term-progs
T004	DELPHI/AID	1	XB32		12/09/87	Explains the DELPHI system with XMODEM.
U001	CALENDARS	1	XB			A set of different calendars progs.
U002	FACTAL	1	EA		OLD	Fractal explorer
U003	LABELER	1	XB		11/16/87	Prints labels with over 100 logos
U005	SCREENDUMP	1			OLD	Screen dump to printer
U006	SYSTEMTEST	1	XBMM			99/4A system test for XB or MM by TI!
U007	UTILDISK-A	1	XB32	---	02/11/88	Selection of Util's in XB and EA
W001	BA WRITER	2	EAXB	1.3	11/16/87	TI Writer on Disk Version and more!
W002	CRUNCH	1			OLD	Crunches Dis/Var 80 files
W003	FUNNELWEB	2	EAXB	4.0b	02/11/88	TI Writer, E/A, Disk manager in one.

(Battery Back-up Circuit and A Second RAM Chip Addition)

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Supercart Additions - McCulloch ADDING TO YOUR SUPERCART -By Jim McCulloch

As almost any 99'er knows, a Supercart is a solid state command module for the 99/4A which includes an Editor/Assembler GROM chip and a battery backable CMOS static RAM memory chip, the HM6264LP-15 by Hitachi or other makers. With this module, you can have power-up menu access to any Assembly Language program(s) you feel like including, as long as the total size doesn't exceed 8K.

The full instructions for the construction of the battery backed Supercart were described very well in MICROpendium Magazine in the June, July and August 1985 issues by its inventors, John Clulow and Ron Gries of the New Horizons Users Group of Ohio. It has come to my attention, however, that several people have earlier versions of the Supercart without the battery backup circuit (such as described in one of the RYTE Data newsletters). For anyone who doesn't have access to the MICROpendium issues (everybody should; it's a good magazine for us 99'ers in spite of the controversial major advertiser), this article will describe the addition of the battery backup circuit. For those of you who already have this most useful feature, read the next sentence. Thanks to Mark Lopez who told me how he did it, this article also describes the construction of a manually bank switchable module with TWO HM6264LP-15 chips installed for a total of 16K user addressable memory (albeit 8K at any one time). Although much of the following may be "old hat" to many of you, it includes some information I haven't seen distributed widely and so I naively include it so that more of us can share any helpful information.

PARTS LIST

<u>PARTS</u>	<u>QTY</u>	<u>SOURCE</u>	<u>PRICE</u>
(For the battery back-up circuitry)			
1N914 Signal Diodes	(2)	Radio Shack 276-1122	\$0.99 for 10
1K Resistor-1/4 Watt	(2)	Radio Shack 271-1321	\$0.39 for 5
2.2 MFD Tantalum Capacitor	(1)	Radio Shack 272-1435A	\$0.59 each
Jumbo Red LEDs	(1)	Radio Shack 276-0141A	\$0.69 for 2
Lithium 3V Enercell Battery	(1)	Radio Shack 23-160	\$1.79 each
Coin-Type Lithium Battery Holder	(1)	Digi-Key BH906-ND	\$1.25 each
(For the switchable second RAM chip capability)			
HM6264LP-15 CMOS RAM IC	(1)	I.C.Express	\$2.95 each
1K Resistor-1/4 Watt	(1)	Radio Shack 271-1321	\$0.39 for 5
SPDT Miniature Switch (Center Off)	(1)	Radio Shack 275-325	\$2.19 each
(General Purpose)			
Module Top 1053555-0107	(1)	T.I.Parts Dept.	\$0.36 each
Module Bottom 1053554-0107	(1)	T.I.Parts Dept.	\$0.30 each
Module Door 1015923-0007	(1)	T.I.Parts Dept.	\$0.06 each
Door Spring 1015928-0001	(1)	T.I.Parts Dept.	\$0.05 each
P.C.Board (2 sides) 1015921-0004	(1)	T.I.Parts Dept.	\$3.60 each
E/A GROM Chip 1015960-1204	(1)	T.I.Parts Dept.	\$3.60 each
(?C1?)Capacitor .1UF 50V 1501701-0122	(1)	T.I.Parts Dept.	\$0.14 each
Screw 1010685-0034	(1)	T.I.Parts Dept.	\$0.02 each

Radio Shack stores are generally ubiquitous. Digi-Key may be addressed at: P.O. Box 677, Thief River Falls, MN 56701-9988 or at 1-(800)-344-4539. I.C.Express can be addressed at: 15358 Valley Boulevard, City of Industry, CA 91746 or at 1-(800)-892-8889 (\$10 minimum order). T.I. Parts Dept. can be reached at their new (1986) phone number at 1-806-741-3064 (Credit Cards useable and get faster response).

First of all, to open a module, unscrew the screw on the bottom cover. Then using a flat bladed screwdriver, pry the retaining lugs to be encountered in the bottom slots outwards. If you leave the foil label on the front of the module, it will act as the hinge of the clam shell thus formed, keeping proper alignment. You will probably find that the spring and door assembly are located on the top part of the module case. In some cases it's easier to reassemble the module if the spring and door are on the bottom. If you pinch the spring together (like a hose clamp), it will enlarge enough to fit over the larger post on the bottom module cover and the door fits in as before.

If you have an older style Supercart without the battery back-up circuitry, you may notice that pin 28 of the RAM chip is connected to the right hand side of the foiled hole F3. This is the +5V supply as it is supplied from the console via GROM port extender pin 19 (on the underside of the Printed Circuit Board). In keeping with the MICROpendium instructions, the foiled holes at both F3 and F1 should be electrically separated by scraping away the connecting foil. The C1 capacitor (the one which came installed on the board) should be moved to the right handed holes of F3 (which is +5V from the console) and F1 (which is Ground) if it isn't already there.

There should be a wire connecting RAM hole 20 to the left handed hole of F1 (as well as a connector from RAM pin 20 to RAM pin 22 and a 1K resistor between RAM pin 20 and another part of the board.) The LED has a flattened side; the wire on this side should be connected to the left hand side of F3. This will supply + voltage to keep the CS2 pin of the RAM chip (pin 26) at a high voltage state which is needed for proper operation. To this wire in the left hand side of F3, connect one lead of a 1K resistor (R2 in Figure 2). The other end of R2 connects to any one of the Grounded foiled holes around the periphery of the board. The lead of the LED opposite the flattened side should be connected to any of the +5V holes available on the board; this may include the right hand side of F3 or any of the bottom right GROM holes as shown in Figure 2.



Somewhere on the board, you should make an electrically isolated hole; if you remove the 100 ohm reset resistor between F2 and RS, then the F2 hole is easily available by scraping away its foil connection with the rest of the board. Into this hole, solder a short length of stiff wire; to this terminal you will be soldering four other connections. The first of these four connections is the dark banded end of a diode (D1 in Figure 2); the other end of D1 is connected to a +5V supply hole, such as at the bottom right side of the right-most GROM socket. This will supply the +5V to activate the RAM chip and enable it to be written to. The second connection to F2 is one end of a 1K resistor (R3 in Figure 2). The other end of R3 should be soldered to the dark-banded end of another diode (D2 in Figure 2). The other end of D2 should be connected to the positive lead of the Lithium battery holder. (Soldering directly on Lithium batteries should be discouraged since there are reports of these types of batteries EXPLODING when subjected to heat or charging currents. The diodes in this circuit are apparently used to prevent such currents.) The third connection to F2 is the + lead (it's marked) of the Tantalum capacitor (C2 in Figure 2). The other lead of the Tantalum capacitor should be connected to any of the grounded holes around the periphery of the board. This is to "isolate" the power source. To any of the grounded holes available around the periphery of the board should be connected the negative lead from the Lithium battery holder. The fourth and final connection to F2 is a wire, the other side of which connects to Pin 28 of the RAM chip (disconnect any previous wiring from it to F3). Wrap any exposed wiring with electrical tape to prevent short circuits. I drilled a 1/4" hole in the front label side of the cartridge to let the LED shine through; it's not absolutely needed for correct functioning but it's a nice touch. Voila, this should do it for the battery backed circuit!

Adding a Second RAM Chip

This section describes how I added a second RAM chip by piggybacking it on top of the first. However, this makes the chip pile high enough so that the module cover will not close over it. Accordingly, I had to remove a small section of the top module cover (about 1 by 2 cm.) right at the point where it takes a couple of right angle turns. This is where the module narrows so that it will fit into the cartridge slot of the console. Since the chips take up some of this space, this "souped-up" Supercart needs to reside in a widgit or other cartridge expander (it even works well in a GK). To do the actual cutting of the module cover, I used an old soldering gun which had a plastic cutting tip but I suppose anything from drills to hot wires could be used also.

The Hitachi HM6264LP-15 is a 28 pin chip of which one pin is not connected, two pins are concerned with power supply (ground and +3-5V input), and 21 pins of which are address and data lines. This leaves 4 pins left over which control the functions of the chip. Pin 27 is the WE or Write Enable pin which determines whether the chip will be written to or read from and is controlled via the wire connected to edge connector 3; if the voltage to this pin is in a high state (+ voltage) then the chip's memory will be available to be read from whereas if it is low (0 voltage or grounded) then a write to memory is expected. Pin 26 is the CS2 pin which seems to act as a sensor as to whether power is applied or not; if this CS2 pin is at a low (0 voltage or grounded) state, then none of the chip's memory functions are accessible. This is why it is fed a continuous high voltage state via the LED which is connected to the +5V supply from the console (the left hand F3 hole connects with pin 26). Pin 22 is the O_P pin or data bus in and I'm not entirely clear as to its meaning. However in this system, if this pin is at a high voltage state, output from the chip is disabled and if it is at a low state (0 voltage or grounded) then read and write functions can be done. The last of the four control pins is pin 20 or CS1 or chip select pin. When this pin is supplied with a high state (+ voltage) the entire chip pretends that it isn't there (it's "deselected"). When this pin is at a low state (0 voltage or grounded) then it gets the message that it has been "selected" by the rest of the system to converse with and its functions are enabled. If you look at the inside of a GK or Horizon Ramdisk which both use piggybacked 6264LP-15s, you will find pins 20 bent out with individual wires connecting them to the board; this is the way each chip is selected or deselected.

The above paragraph is probably boring and inaccurate but it helps to explain the circuitry necessary to add another RAM chip to the pile. It's relatively simple to piggyback another RAM chip on top of the first; bend in the pins to make a tight fit over the lower chip's pins by molding on a table top, then bend out pins 1, 2, 20, 27, and 28. Then solder the pins from the top chip to the bottom chip being careful not to make any solder bridges between adjacent pins. (In my module, I actually soldered the two together before I installed it on the board.) Pin 1 is ignored. Pins 2, 27, and 28 are connected to the same wires as supply the corresponding pins on the lower chip. If you connected all of the pins of both chips in parallel, you would have both chips doing the exact same thing - clones of each other. How do we give each chip its individuality? This is where the CS1 pins (pin 20) become useful. A "pullup" resistor is used to supply + voltage (a high state) to pin 20 of the chip not being used which as we read in the above paragraph has the effect of making that chip "invisible" to the system. In the absence of such a "pullup" resistor and + voltage source, these pins would tend to "float" down to a 0 voltage state which would cause the system to "select" both chips at once. This would cause the system to read the same address of both chips simultaneously which would result in garbage and a

probable crash. In the Supercart board, there is a resistor (R1) which acts as such a pullup resistor. In the version described for use in cartridge expanders, this R1 resistor is connected between CS1 (pin 20) and the +5V line from the console. This supplies a high state to deselect the chip. How then is the chip selected to enable it to do its thing? This is the function of the wire connecting pins 20 and 22 (the OE pin). When the OE pin is made a low state (0 voltage) then pin 20 is also made low since the resistor supplies voltage less readily than the direct connection to pin 22 "takes it away". To enable us to use both chips independently then, we could use a switch to connect the OE (pin 22) line to either of the RAM chips pin 20 while having pullup resistors connected to both pins 20 to keep the other chip deselected while the one chip is working.

This is exactly what I did: disconnect any wiring between pins 20 and 22 (to be found on the lower or older chip); next connect 1K resistors (R1 in Figure 3) between pin 20 and the +5V line for both the top and bottom RAM chips; next run wires from pins 20 of both the lower and upper chip to the outer terminals of the SPDT switch; then connect the center terminal of the SPDT switch to the OE pin with another wire (if you're tired of soldering on chip pins by now, you could run this wire to edge connector 2 which is the same line).

I then drilled another 1/4" hole in the front (label) side of the cartridge (somewhere on the left hand side to keep it away from the chips) to install the switch in. If the spring and door of the module cover have been moved to the bottom cover, it makes it easier to insert the modified board back into the module. Again, wrapping any exposed wires helps to prevent short circuits (in one of my earlier efforts, smoke rewarded me when I powered up the Supercart!) I finally used black electrical tape to wrap around the module and cover up the hole I'd made in the top cover. Voila, a manually switchable extra bank of useable memory! Now I can choose between 2 different entry menu screens simply by flipping the switch.

One other potentially useful feature I've found is this: with my previous single banked Supercart, I would more often than not scramble the memory if I removed the cartridge or inserted it with the console power on. (In retrospect, this is because the chip was hardwired to be constantly selected and was subject to transients and "spinal shock" when connected and disconnected.) Now if I "deselect" both RAMs by placing the switch in the center position, I can remove and insert the cartridge even with console power on without losing Supercart contents. To run, however, one or the other of the RAM chips has to be selected.

I hope these comments have been useful to any other "technoklutzes" beside myself out there. If anyone has any corrections or comments to make, I'd be pleased to get them at: Jim McCulloch, 9505 Drake Avenue, Evanston, IL 60203-1107 (CIS ID# 74766,500).

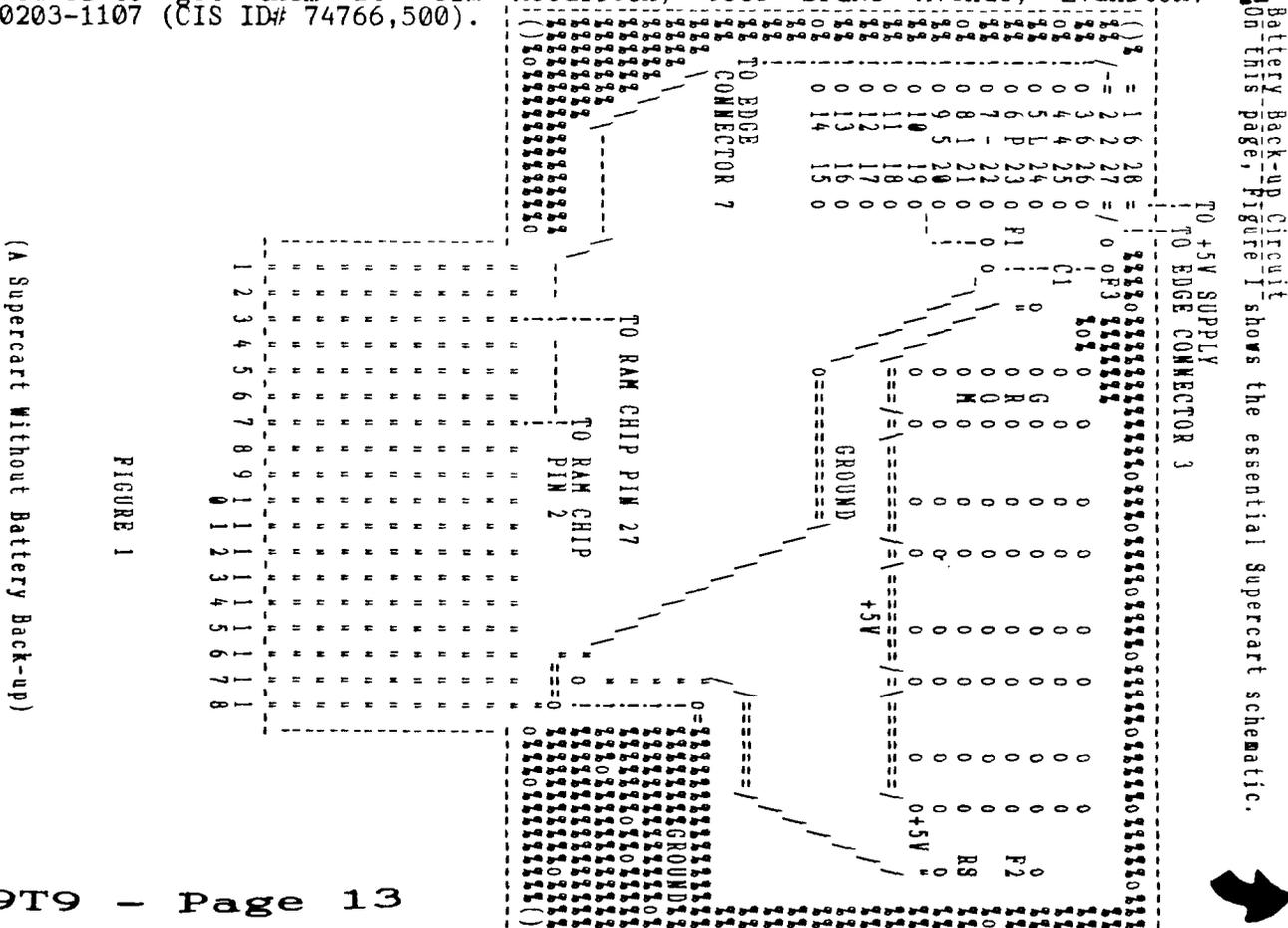


FIGURE 1

(A Supercart Without Battery Back-up)

