THE GUILFORD 99'ER NEWSLETTER

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OUR NEXT MEETING

DATE: April 7, 1987. TIME: 7:00 PM PLACE: Glenwood Recreation Center 2010 S. Chapman Street.

Our program for April will be new and different in several ways. For one we will have an outside speaker, Dan Post, the System Operator of the ROS board speak to us. Dan has been "in computers" for a number of years and even though he owns a "closet TI", his current favorite is the Kaypro AT compatible. Dan's expertise is not only in telecommunications and programming but also in repairs and maintenance of computer equipment. Our original intent was to bring in a system, PE Box and modem and show a live communications session. Unfortunately we realized very quickly that this would not be practical in the recreation center were we would have to string phone lines and tie up telephone equipment for the better part of an hour. Instead, we have captured a communications session with the ROS board on 35mm slides and we have a number of slides to illustrate all aspects of a board session. This will be a great opportunity to meet Dan, who has been a very gracious host to our club activity on his equipment and also an opportune time to ask Dan questions about his board and telecommunications .

VP-PEEKS

Last month I tried an article in our Newsletter and it was so much fun that I thought I would do it again this month. Aw come on, you gotta read something!!

First off, I would like to extend a warm welcome to John Goller, our newest member. How 'bout making these new members we are getting feel welcome at our next meeting. I remember the first meeting I attended at the Zayre meetingplace. I really felt like I had a pox or something, for no one spoke to me or expressed any feeling as to my being there. It makes you feel bad not to be recognized . I do remember Carl giving me a warm smile and welcoming me when I paid my dues, but he was the only one.

We received our copy of THE IBM XT CLONE BUYER'S GUIDE from Edwin Rutsch. I haven't had time to read any of it as yet, but I will have it at the next meeting and you will be able to check it out of the library just as you do the disks. Just glancing through it, it seems to be very informative.

There have been some interesting developments over the past few weeks with a new game (new to me that is,) of TI RUNNER. I downloaded this game from the OPUS (old Fido) board and my Daughter and I have been fighting over who would get to play it almost every evening. The new development is, George McCormick, a faithful visitor of late, has a program called Board/Maker which will enable you to edit and change any existing screen, or if you wish, you can make your own. I have made 10 new screens so far. It is one of the most fascinating games I have played lately.

You remember last month I spoke of maybe having a door prize? Well, this month we are gonna do it! I will have a disk with TI RUNNER and BOARD/MAKE which you will be going for. Just one thing about Board/Make, be sure and use a different disk with file "LEVEL2I" on it if you want to edit or make a new screen, as your old screen will be written over. If there are any questions you have about it, ask George or me at the meeting. I think this time I will say that we will let Ben's little Brother draw cause Ben jumped me for calling him little last time!!

I have asked Dan Post, the Sysop of the Groundstar RBS Board, to speak to us at the April meeting and he has agreed to come. There will be special effects by Herman Geschwind who's wife is an accomplished photographer. They have made color slides of an actual session Herman had on Dan's board and will give visual pictures of each phase as Dan describes it. I think this will be very interesting and I hope all can attend.

I guess I will learn sometime to hold on to things...I was going to throw away the flyer about Printers that we got in the mail after the last meeting. Joey took it because he said someone might be interested, well they were! John Hiatt, who was unable to make the last meeting, called and said he heard through the grapevine that we had the flyer and wanted to order him a printer from it. I could not for the life of me remember who took it at the time, but Bob informed me that it was Joey. I called John and informed him that Joey had it. I could have saved John a LD call if I had only held on to it. From now on, I will file each flyer we get and if we ever need them I will have it. Sorry John.

There seems to be quite a bit of interest in the HORIZON RAMDISK. There are already articles being published telling how to piggy-back the chips to get more K out of it. If you haven't heard the scoop on these boards, the price of 104K-360 Sector is $165. and the 192K-720 sector is $210.

If you would like to try the job yourself, you can get the PC Board, Manuals and Software for $53. The parts for the 720 Sector will cost you another $100. unless you know of a cheap dealer or have an ample scrap-box. If five or more chip in together, you can get the same boards for $45. each but only 1 manual and set of disks.

Ever been typing in a program and hit Function Quit instead of Shift +? If so, there is a cure for it next time. To disable the F/Q feature just type 10 CALL INIT::CALL LOAD(-31806,16). After entering this command you will have to cut your console off to get back to the title screen or type BYE.

One last thing, I want to thank Carl and Mike for their offer to print the Newsletter for us. The cost has become prohibitive and these members have offered to help out every other month which will enable us to put a little money in the treasury. We really didn't know how much Buddy was helping us all those months he let us use his machine. Thanks again Buddy. Well, I don't want to take up space that Herman might have for something of more interest so I look forward to seeing all of you at the April 7th meeting. Try to come and you will be a winner, even if you don't win the disk!! Till then, take care. (Submitted by Mac Jones)

TI SHOPPER

This month, we are going to look at some rather exciting "fairware" and commercial offerings that are available. The first of these is a program called PRESCAN_IT! authored by J. Peter Hoddie and marketed by Asgard Software. The price on this package is $10.00. The package really doesn't do anything that couldn't be done by hand --it is just a whole lot more convenient. PRESCAN_IT! is a utility to prescan your XB programs (previously SAVEd in a MERGE format) and turns off and turns on the prescan function at the appropriate time. For those of you who are not familiar with the prescan function, that is what the program is doing after it loads. The computer is allocating space for arrays, variables, etc. With PRESCAN_IT!, the program will RUN almost instantaneously after it is loaded into memory. The program does all of the "housekeeping" for you

and creates a complete MERGE file. There are options to replace the variables with constants (which saves memory) and to use "External" CALLs (MG XB, Mechatronic XBII+ are included). The files are d/V 80 files so you could probably create your own quite easily. For $10.00, the package is a real deal. I have used it and it is a slick program. Speed, however, is not one of its strong points!

Another "fairware" offering is the latest update of John Birdwell's DISK UTILITY package. It has features that are not usually found in disk manipulation programs -- at least not all together. The program comes with complete documentation and is largely menu-driven so it is completely "user friendly". Some of the features are: COMPARE DISKS, STRING FIND, and the usual disk sector editing capabilities. If you had only one disk editor, this would be the one --it is "fairware". (Editor's Note: Can be downloaded from the ROS board, file name DSKUAR.TI - unpack with ARCHIVER)

I just got the latest version of FUNNELWEB from "down under" the other day. This one has a" devious and vicious" bug eliminated in the load path of c99 (I haven't encountered it yet, though). It also has the latest version 3.5 of DM1000 interfaced into the system. The usual "fairware" contribution is encouraged. The McGoverns are also in the final stages of completing the 16 second disk copier and it should be available very soon!

Well, that about does it for this month! 'Til next month.

LOGO TIMES
Little BIG LOGO

My fondness for LOGO is expanding, prompting a revision in the title of this column. Not only have we misperceived LOGO as being just for kids, but we also have the misconception that its pretty much limited to graphics applications.

LOGO can do anything Basic, Forth or Pascal can do, and some say, it can do it better. That of course may be just a matter of perspective, familiarity or preference. And it is not to say the TI LOGO does not have its limitations in comparison to other languages available to us. (More about this later.)

But I have discovered that the folks who think of LOGO as a weak computer language are us, the home computer crowd who actually stand to benefit from it most. In professional computer science circles, I have discovered , there is considerable respect for Lil' LOGO.

Indeed Brian Harvey, computer scientist at the University of California and formerly of MIT where TI LOGO was developed, unabashedly asserts:

> "The truth is that LOGO is by far the most powerful programming language available for home computers. It is a dialect of LISP, the language used in the most advanced research projects in computer science, and especially in artificial intelligence. Until recently, all of the books about LOGO have been pretty trivial, and they tend to underscore the point by strewing cute pictures of turtles around. But the cute pictures aren't the whole picture."

Harvery asserts that LOGO's power comes from its simplicity, logic and ease of use--all important qualities for us home hackers. He also maintains that novices assume a powerful computer language allows you to do something(s) that other languages can't do. Actually, it all depends on the application, but essentially all languages were created about equal. Each has its positives and negatives. Power is another matter. "Instead," Harvey argues, "the power of a language is a way of measuring how much the language helps you concentrate on the actual problem you wanted to solve in the first place, rather than having to worry about the constraints of the language."

Think about this a bit, because it is central to LOGO's value. While LOGO is indeed an alien computer language, it seems to me to come closest to being what we think a language is. In that traditional sense, it is a means of communication, and apparently a more direct one than most in helping us get these machines to do what we'd like them to do.

Indeed, if you didn't know it already, LOGO doesn't mean cute, or turtle or graphics or kids. It comes from the Greek word logos, meaning word. So you'll find, if you browse through that TI LOGO manual, that it tells about words, sentences and lists. LOGO does have commands, but it seems to me far less encumbered with computer syntax that virtually any computer

language.

Incidentally, those commands generally are known as "primitives." These are the built in "words" of LOGO, which allow us to literally expand the language. We do it by using the primitives to create new words, to add to LOGO's vocabulary in ways individually useful to us. These are called procedures. They are the essence and the power of LOGO. (Contributed by Larry Spohn)

KWIKFONT

When I first brought up KWIKFONT, I had the feeling that there was something vaguely familiar about this package which is a combination of program and tutorial. And then I remembered, Millers Graphic's NIGHT MISSION. Yes, what had attracted me to that offering was not only the extremely well thought out arcade game, but the manual that came with it, one of the best Extended Basic tutorials on the market. I must confess that I am not much of a game fancier but being able to read and re-read the manual was certainly worth the modest price.

KWIKFONT is very much like that. As the name implies, KWIKFONT is a font editor and quick about it, too, since it is written entirely in Assembler. Like many other similar editors, KWIKFONT presents a magnified "window" and in this window pixels can be drawn, flipped, rotated, inverted, etc. Your creations can be saved to disk or printed out. While it is a full-featured package, except for its blazing execution speed, it is very similar to other font or sprite editors in Extended Basic which are comparatively sluggish in performance.

Creating or revising fonts, no matter how quickly, is not an activity that many of us will do very often. Yes, I did use KWIKFONT to revise the MPCHAR character set of MultiPlan and I did appreciate KWIKFONT's ability to invert characters at the press of a key. But would I recommend KWIKFONT just because it is slick, professionally done, and lightning fast? Hardly. What really is attractive about KWIKFONT is what its author, Wayne Stith, modestly calls "commented source code."

Usually commented source code implies rather terse one-liners which might be fine for letting the author find his way through his creation but for the average user the comments are no more helpful than the source listing as such.

What Wayne Stith packs into 10 D/V80 files (70 pages or so, printed out) is a very different approach. His comments are not just one liners but whole pages and multi-line paragraphs. In reading his tutorial three things very quickly become evident: (1) Wayne Stith loves Assembler as a programming language, (2) he knows how to teach his subject matter, which really should not be surprising since he holds a Masters Degree in Teaching (German) and currently teaches at the University of Virginia, and (3) he cannot only program but also knows how to write well.

He starts off with the premise that his readers are familiar with Basic or Extended Basic, but that this program will be their first exposure into the inner workings of Assembler. After a general introduction, Wayne gives a detailed running commentary for each block of KWIKFONT code, his design philosophy and tips and tricks for many general purpose subroutines.

Unlike the Millers Graphics offering, the tutorial is only available as print files on the flippy along with the KWIKFONT object code. To keep the price for his offering to a minimum, Wayne Stith elected not to have his manual printed. This is a pity because the text deserves a better presentation than being banged out on a dot matrix printer but then again quite often economics need to take priority over esthetics.

KWIKFONT will be available with a forthcoming issue of GENIAL TRAVeLER #5 or it can be ordered direct from the author: Wayne Stith, 715 Tinken Drive, Richmond, Va 23229. The price is $5.00 if a flippy (or two SSSD disks) is sent in a mailer, or $6.00 if only a check is sent. (Contributed by Herman Geschwind)

FORTH FORUM

This month, we are going to look at a couple of Forth screens (TI-Forth) and see how they compare to an extended BASIC program. The words have been defined (ie. L100, etc.) so that they can be compared with the corresponding XB line numbers. Here are the Forth screens and the short XB program that do exactly the same thing:

SCR #6

```
0 ( XB TO FORTH SAMPLE ) BASE->R DECIMAL
1
2 M6 ; ( "FORGET M6" WIPES OUT ALL OF THE FOLLOWING WORDS )
3
4 : L100 CLS 5 SCREEN 17 3 DO I 14 I LOOP EMPTY-BUFFERS ;
5
6 : L110 CLS 0 3 GOTOXY ." Name :" CR ." Address:" CR
7 ." City :" CR ." State :" CR ." Zip :" ;
8
9 : CLRBUF 8210 90 32 VFILL ;
10
11 : L120 CLRBUF 10 3 GOTOXY 8210 20 EXPECT
12 10 4 GOTOXY 8232 20 EXPECT 10 5 GOTOXY 8254 20 EXPECT
13 10 6 GOTOXY 8276 2 EXPECT 10 7 GOTOXY 8280 5 EXPECT ; 14
15 -->
```

```
SCR #7

0 ( XB TO FORTH SAMPLE CONT.  )
1
2 : L130 2 12 GOTOXY 8210 22 -TRAILING 2- TYPE
3 2 13 GOTOXY 8232 22 -TRAILING 2- TYPE
4 2 14 GOTOXY 8254 22 -TRAILING 2- TYPE
5 8276 4 -TRAILING 2- TYPE
6 8280 7 -TRAILING 2- TYPE
7
8 : QUIT? ?TERMINAL IF TEXT ABORT ENDIF ; (FCTN 4 STOPS PROGRAM )
9
10 : L140 15 0 DO I SCREEN 100 0 DO QUIT? LOOP LOOP 5 SCREEN ;
11
12 : LOOPIT L110 L120 L130 L140 MYSELF ;
13
14 : RUN GRAPHICS L100 LOOPIT ;
15 R->BASE RUN
```

```
XB PROGRAM

100 CALL CLEAR :: CALL SCREEN (6):: FOR I=1 TO 14 :: CALL COLOR(I,2,15):: NEXT I
110 CALL CLEAR :: DISPLAY AT(4,1):"Name :":"Address:":"City :":"State :":"Zip :"
120  ACCEPT  AT(4,9)SIZE(20):N$  :: ACCEPT AT(5,9)SIZE(20):A$ :: ACCEPT AT(6,9)SIZE(20):C$ :: ACCEPT AT(7,9)SIZE(2):S$ ::
ACCEPT AT(8,9)SIZE(5):Z$
130 DISPLAY AT(12,1):N$:A$:C$&", "&S$&" "&Z$
140 FOR I=1 TO 16 :: CALL SCREEN(I) :: FOR J=1 TO 100 ::NEXT J :: NEXT I :: CALL SCREEN(6) :: GOTO 100
```

Well, that's the column for this month. We will look at some Wycove Forth next time . . .(Contributed by Bob Carmany)

MODEM TALK

ROS (919) 621-2613

There has been a good bit of uploading since the last newsletter, so here is a quick run-down of what is new:

MT30ARC.TI... This is the 300 baud version of Mass Transfer V4.1. While it is possible to make a permanent change of the default baud rate with a disk editor (the documentation includes instructions on editing defaults), for the convenience of 300 baud users this version is now available, ready to run. As was commented last month, MassTransfer is the best communications program yet for the TI, fairware or commercial.

DIAGARAC.TI...A set of diagnostics in case your system is ailing and you need to do some trouble shooting. Also on ROS we have the diagnostics released by TI to the public domain but these are not the easiest to use. Additionally, these diags will probe some areas not covered by the TI offering. A program that we cannot upload is Miller Graphics Advanced Diagnostics, which is the best yet for troubleshooting disk drive misbehavior. For a complete set of tools you really should have the program that we are featuring, the TI programs and the MG Advanced Diags.

BUDMPARC.TI...This is a household budget tracking systems for MultiPlan. Use your bank statement to enter income and expense items and this program will list how you are doing by the month, quarter and year to date. A neat way to keep track of all the deductible expenses for income tax filing.

MACROMAN.TI...This is a variation on TI Runner. Load and run with FunnelWeb or E/A.

MAZOGS.TI.....A variation on PacMan which came to us from Germany via Australia. Load with FunnelWeb.

MPSIDE.TI....George von Seth was looking for such a program. A utility that will let you print MultiPlan spreadsheets sideways.

TWTUT.TI...A collection of excellent tutorials on using TI Writer. Just about everything that is said is also applicable to FUNNELWRITER or FunnelWeb (some things are even easier with the Funnel products). If you don't have the manual or if you feel overwhelmed by the big manual, these tutorials might be for you.

ERNIE.TI....A real cute adaptation of the Sesame Street characters as a graphics and speech demo.

IMLOST.TI...A devilish maze game. Load with FW or E/A.

INFAARC.TI and INFBARC.TI....This is a text adventure game. Both parts are required to run. This is a Bib program and will take a good while to load. In case you are wondering, no there is nothing wrong with your disk drives.

FWAARC.TI and FWBARC.TI.. This is the latest incarnation of FunnelWeb. This version includes the most recent level of bug fixes (through Feb. 16, 1987) and as a new feature now incorporates DM1000 V3.5, the most recent version of this popular Disk Manager.

FIDO (919) 2745760

This board is still being reorganized, both as to hardware and software. File space is still critical and for that reason there have been no new uploads recently. There will be a number of changes and perhaps by this time next month the picture will be different.

Here are some questions that have been asked:

MODEMS: What is a good buy and should I go 1200 baud. The price of 1200 baud modems is steadily coming down and name-brands, not Taiwan rice paper specials, can now be had in the $120 to $140 range. I have even seen some ads for $80 1200's and I understand that the Avatex HC is a good buy at that price. Others are no-name mail order specials and I would be leary of non-standard control codes and functions. 300 baud is ok to get your feet wet and quite satisfactory for reading and entering messages on the board (I can't type all that fast anyway) but for file-downloads, 1200 is the better way to go. 300's appear to be a dyeing breed and if you are looking for a minimum budget entry level modem, good quality 300's can be found in the $35 to $25 price range. (If you already have a PE Box with PIO/RS232, a modem and comm software (see MassTransfer) is really all you need to get started).

ARCHIVED FILES: The question has been asked why ARChive files and how can I tell that a file has been archived and how can I unpack it. Quite often a popular program might be a package consisting of several documentation files, XB loader and several E/A programs and support utilities. If such a package were to be uploaded a piece at a time, we would have a number of problems (1) You would have to make sure that you download all the pieces or the program might not run, (2) there would be problems in letting you know which pieces go together, (3) "Load" files would have to be renamed since no board will accept duplicate file names and (4) last but not least it is much easier to get just one file transfer started and then just sit back with a cool beer and watch the record/sector counter click then to be jumping a round with a lot of short files.

Usually the file name will have "ARC" in it to warn you that the download is ARChived and needs to be UNPACKED before

running. Another tip-off is that the file will be D/F128 in format and protected. If you have two disk drives, the program to use for UNpacking is ARCHIVER which lets you unpack from one drive to another. The latest version of ARCHIVER uses a buffer of 50 sectors which speeds up the unpacking compared to prior versions. ARCHIVER gives a running status report as to what is going on. Another program, UNPACK by Mike Dodd is a lot more quick and dirty about it. It uses a big buffer and will read/write in big chunks but to make this possible there will be no information on the screen as to what is going on. Users with only one disk drive need not despair. For single drive unpacking Barry Traver, the author of ARCHIVER, has written UNPACKER, which will read in a chunk and then prompt for a disk swap. Otherwise UNPACKER is the same as ARCHIVER.

FILE LISTING: The question has been asked why is it that RDS only gives a listing of file name and file size. How do I know what this file is all about. The solution is at the file section prompt key in N for (N)ewin. Several screens of file information complete with brief description and also the date when the file has been uploaded will be displayed. This is real convenient when you dial in only infrequently and you want to have a quick run-down of what is new. Be aware that (N)ewin lists all the files new to the board including MS-DOS, Commodore, etc. As a convenience in spotting files for the TI, all of our uploads include the files extension TI. (Contributed by Herman Geschwind)

BASIC CORNER

The listing that we are featuring this month is "Compu-Golf" by Jeff Rickel and David Engel. Once you keyed it in and ran it, you will agree with me that this is a very and challenging mini-golf game. It is reasonably fast and the action is very realistic. The trick is not only to put at the right angle but also the select the right speed for the ball. The way the ball deflects from the edges is very realistic and adds to the challenge.

This program is about the best that I have seen written in plain TI console basic. With their effort, Jeff and David prove that Console Basic has taken a bum rap as far as being able to create exciting and challenging games go. All too often Basic games are just another variation on maze games or the toot-toot-shoot variety where something moves from left to right or right to left and the object is to zap 'em from down below. Rightly so these games are quickly forgotten due to their overly simplistic approach and lack of variety and challenge. That this is a design problem and not one of Console Basic, Jeff and David demonstrate with this listing.

Be particularly careful when you type in this listing. To create their graphic display, the authors have redefined punctuations marks such as the apostrophe, open parenthesis, accent grave, comma, etc. When you type in the data statements starting with line 790 make sure that you not only key in the right number of characters but also the right ones. If things don't look quite right on a test run, check these data statements.

And now for some challenges and modifications: If you have a joystick with your console, rework the program so that it will accept joystick input for the ball direction. This should be a fairly easy modification.

Now Challenge #2: Several months ago we discussed and distributed a program called STAR which provides assembler routines to speed up graphics, etc. Our challenge is to rewrite Compu-Golf with STAR subroutines where appropriate. Study the Star manual and see which routines could improve the program. The prize for Challenge #2 is a paid up membership for next year which I will contribute! Not only that but we will also elect the winner into the Guilford 99er Basic Hall of Fame with a handsome diploma to prove it! The entry rules will be discussed later in this article.

Challenge #3: Rewrite the program using the "c99" language. This can be done since "c99" provides all the functions necessary for this program. My prize for this challenge is a paid up membership for two years, a $24 value and induction into the Guilford 99er "c" Hall of Fame!

Challenge #4: Write Compu-Golf using either Logo I or Logo II. Larry in his Logo article claimed that Logo is good for more than just Turtle Graphics. I am not too certain whether this game can be translated. At any rate, if you succeed in the opinion of the judges you will be given three paid up memberships (a $36 value) and lifetime membership in the Guilford 99er Logo Hall of Fame!

Here are the rules for the challenges: All entries are due by 12/1/87. I will ask Bob Carmany and Mack Jones to assist with the judging. You can add joystick support, sprite graphics, music, speech or whatever to you entry, the only requirement is that the game logic and graphic layout must be identical to the Basic listing. If you don't have the Star disk or the "c" compiler, let me know and I can help you out.

```
1 CALL SCREEN(9)
2 FOR I=1 TO 8
5 CALL COLOR(I,16,9)
8 NEXT I
100 CALL CLEAR
110 PRINT "       COMPU-GOL
F": : : : : : : : : :
120 PRINT "  JEFF RICKEL/DAV
ID ENGEL": : : : :
130 FOR I=1 TO 500
140 NEXT I
150 CALL CLEAR
160 INPUT "INSTRUCTIONS (Y O
R N)?":Y$
170 IF Y$="N" THEN 300
180 CALL CLEAR
190 PRINT "    COMPU-GOLF SI
MULATES      MINIATURE GOLF.
  TO HIT     THE BALL, INPUT
 FIRST"
200 PRINT "  THE ANGLE (1-8)
, WITH       EACH HAVING THE
 FOLLOW-     ING DIRECTIONS:
"
210 PRINT "     1 - N      2
 - NW          3 - W      4
 - NE          5 - E      6
 - SE"
220 PRINT "     7 - S      8
 - SW": : : : :
230 PRINT "  HIT ANY KEY TO
CONTINUE."
240 CALL KEY(0,X,Y)
245 IF Y=0 THEN 240
250 CALL CLEAR
260 PRINT "  NEXT, INPUT THE
 SPEED       (0-9) OF THE BA
LL.          NOTE--THE ENTER
 KEY"
270 PRINT "  NEED NOT BE USE
D WHEN       ENTERING ANGLE
AND          SPEED.  AFTER B
OTH PLAY-"
280 PRINT "  ERS HAVE FINISH
ED THE       HOLE, HIT ANY K
EY TO        CONTINUE THE NI
NE HOLES."
285 PRINT : : : : :"    HIT
ANY KEY TO BEGIN"
290 CALL KEY(0,X,Y)
295 IF Y=0 THEN 290
300 CALL CLEAR
310 CALL SCREEN(9)
320 CALL COLOR(1,3,9)
330 CALL COLOR(2,3,9)
340 FOR I=3 TO 8
350 CALL COLOR(I,16,9)
360 NEXT I
370 CALL COLOR(9,16,3)
380 CALL COLOR(10,14,3)
390 CALL CHAR(39,"FFFFFFFFFF
FFFFFF")
400 CALL CHAR(40,"0")
410 CALL CHAR(42,"0")
420 CALL CHAR(41,"000103070F
1F3F7F")
430 CALL CHAR(43,"FEFCFAF0E0
C080")
440 CALL CHAR(44,"0")
450 CALL CHAR(46,"0")
460 CALL CHAR(45,"0080C0E0F0
F8FCFE")
470 CALL CHAR(47,"7F3F1F0F07
0301")
480 CALL CHAR(96,"1B1E1F1E1B
101010")
490 CALL CHAR(97,"3C7EFFFFFF
FF7E3C")
500 CALL CHAR(104,"00183C7E7
E3C18")
510 DIM D(8,2),A$(4,8)
520 DIM F1(2),F2(2)
530 DIM TT(2),SC(9,2)
540 FOR I=1 TO 8
550 READ D(I,1),D(I,2)
560 NEXT I
570 DATA -1,0,-1,-1,0,-1,1,-
1,1,0,1,1,0,1,-1,1
580 FOR I=1 TO 4
590 FOR J=1 TO 8
600 READ A$(I,J)
610 NEXT J
620 NEXT I
630 FOR A7=1 TO 9
640 SC(A7,1)=0
650 SC(A7,2)=0
660 NEXT A7
670 F1(1)=0
680 F1(2)=0
690 F2(1)=0
700 F2(2)=0
710 FOR HH=1 TO 9
720 RANDOMIZE
730 CALL SOUND(2400,-4,2)
740 A4=INT(RND#4+1)
750 FOR C=1 TO 8
760 PRINT A$(A4,C);
770 NEXT C
780 CALL HCHAR(20,19,HH+48)
790 DATA "
800 DATA "
810 DATA "
820 DATA "
830 DATA "
840 DATA "
850 DATA "
860 DATA "  HOLE
  ANGLE   "
  SPEED   (
870 DATA "
880 DATA "
890 DATA "
900 DATA "
910 DATA "
920 DATA "
930 DATA "
940 DATA "
950 DATA "
960 DATA "
970 DATA "
980 DATA "
990 DATA "
1000 DATA "
1010 DATA "
1020 DATA "
1030 DATA "
1040 DATA "
```

```
1050 DATA "('''''''''-,,,.(' ¦ 1270 Y=22
''''''''''((''''''''''''-(' ¦ 1280 CALL HCHAR(22,X,104)
''''''''''((''''''''''''''(' ¦ 1290 T=0
''''''''''(" ¦ 1300 S=0
1060 DATA ",,,,,,,,,,,,/'''(/ ¦ 1310 G=3
''''''''''(,,,,,,,,*,,,)'''-) ¦ 1320 CALL HCHAR(20,29,T+48)
''''''''''(,,,,,,,*)''''''''' ¦ 1330 CALL HCHAR(21,29,S+48)
''''''''''(" ¦ 1340 CALL HCHAR(20,29,32)
1070 DATA "(((((((*)''''''''' ¦ 1350 CALL HCHAR(20,29,T+48)
''''''''''(((((((*)'''+,,,,/' ¦ 1360 CALL KEY(0,N,M)
''''''''''(((((((*)''''((((((' ¦ 1370 IF M<1 THEN 1340
''''''''''(" ¦ 1380 T=N-48
1080 DATA "(((*)''''''((((((' ¦ 1390 IF T>0 THEN 1420
''''''''''(((*)''''''((((((' ¦ 1400 T=0
''''''''''((*)''''''((((((./ ¦ 1410 GOTO 1340
''''''''''+*" ¦ 1420 IF T>8 THEN 1400
1090 DATA "*)''''''''((((((. ¦ 1430 CALL HCHAR(20,29,T+48)
,,,,,,,,,*((''''''''''(HOLE ¦ 1440 CALL HCHAR(21,29,32)
   ANGLE   (''''''''''(PLYR ¦ 1450 CALL HCHAR(21,29,G+48)
   SPEED   " ¦ 1460 CALL KEY(0,N,M)
1100 DATA "(''''''''''(1 ¦ 1470 IF M<1 THEN 1440
          (''''''''''(2 ¦ 1480 S=N-48
          ,,,,,,,,,,* ¦ 1490 IF S>-1 THEN 1520
          " ¦ 1500 S=0
1110 FOR L1=1 TO 9 ¦ 1510 GOTO 1440
1120 IF SC(L1,1)=0 THEN 1160 ¦ 1520 IF S>9 THEN 1500
1130 CALL HCHAR(22,16+L1,SC( ¦ 1530 CALL HCHAR(21,29,S+48)
L1,1)+48) ¦ 1540 IF S>0 THEN 1570
1140 CALL HCHAR(23,16+L1,SC( ¦ 1550 N=3
L1,2)+48) ¦ 1560 GOTO 1580
1150 NEXT L1 ¦ 1570 N=INT(RND*4)+1+S*4
1160 FOR A8=1 TO 2 ¦ 1580 FOR C=N TO 1 STEP -1
1170 CALL HCHAR(21+A8,28,F1( ¦ 1590 U=X+D(T,1)
A8)+48) ¦ 1600 V=Y+D(T,2)
1180 CALL HCHAR(21+A8,29,F2( ¦ 1610 CALL GCHAR(V,U,K)
A8)+48) ¦ 1620 G=G+1
1190 NEXT A8 ¦ 1630 IF K=39 THEN 2040
1200 X=INT(RND*3+23) ¦ 1640 Q2=Q
1210 Y=INT(RND*5)+11 ¦ 1650 IF K>47 THEN 2140
1220 CALL HCHAR(Y,X,96) ¦ 1660 IF K<>41 THEN 1700
1230 CALL HCHAR(Y+1,X,97) ¦ 1670 Q=41
1240 FOR PP=1 TO 2 ¦ 1680 K=42
1250 CALL HCHAR(21,19,PP+48) ¦ 1690 GOTO 1770
1260 X=INT(RND*5)+5 ¦ 1700 IF K<>45 THEN 1740
¦ 1710 Q=45
¦ 1720 K=46
¦ 1730 GOTO 1840
¦ 1740 IF K<>43 THEN 1810
¦ 1750 Q=43
¦ 1760 K=42
¦ 1770 IF T=4 THEN 1790
¦ 1780 IF T<>8 THEN 1870
¦ 1790 G=1
¦ 1800 GOTO 1870
¦ 1810 IF K<>47 THEN 1870
¦ 1820 Q=47
¦ 1830 K=46
¦ 1840 IF T=2 THEN 1860
¦ 1850 IF T<>6 THEN 1870
¦ 1860 G=1
¦ 1870 Z=K-34
¦ 1880 T=Z-T
¦ 1890 IF T>0 THEN 1910
¦ 1900 T=T+8
¦ 1910 IF T<9 THEN 1930
¦ 1920 T=T-8
¦ 1930 U=X+D(T,1)
¦ 1940 V=Y+D(T,2)
¦ 1950 IF G<>2 THEN 2020
¦ 1960 IF C<>N THEN 2020
¦ 1970 CALL GCHAR(V,U,K)
¦ 1980 IF K=39 THEN 2020
¦ 1990 Q=Q2
¦ 2000 T=9-T
¦ 2010 GOTO 1930
¦ 2020 CALL HCHAR(20,29,T+48)
¦ 2030 CALL SOUND(50,880,2)
¦ 2040 IF G<>2 THEN 2070
¦ 2050 CALL HCHAR(Y,X,Q)
¦ 2060 GOTO 2080
¦ 2070 CALL HCHAR(Y,X,39)
¦ 2080 CALL HCHAR(V,U,104)
¦ 2090 X=U
¦ 2100 Y=V
¦ 2110 NEXT C
¦ 2120 SC(HH,PP)=SC(HH,PP)+1
¦ 2130 GOTO 1320
¦ 2140 IF C<6 THEN 2250
¦ 2150 T=INT(RND*8)+1
¦ 2160 O=U+D(T,1)
¦ 2170 P=V+D(T,2)
¦ 2180 CALL GCHAR(P,O,K)
¦ 2190 CALL SOUND(50,440,2)
¦ 2200 IF K=39 THEN 2220
¦ 2210 GOTO 2150
¦ 2220 U=O
¦ 2230 V=P
¦ 2240 GOTO 2040
¦ 2250 CALL HCHAR(Y,X,39)
¦ 2260 FOR F=410 TO 110 STEP -
¦ 50
¦ 2270 CALL SOUND(50,F,2)
¦ 2280 NEXT F
¦ 2290 SC(HH,PP)=SC(HH,PP)+1
¦ 2300 IF SC(HH,PP)<10 THEN 23
¦ 20
¦ 2310 SC(HH,PP)=9
¦ 2320 TT(PP)=TT(PP)+SC(HH,PP)
¦ 2330 CALL HCHAR(21+PP,16+HH,
¦ SC(HH,PP)+48)
¦ 2340 F1(PP)=INT(TT(PP)/10)
¦ 2350 F2(PP)=TT(PP)-10*F1(PP)
¦ 2360 CALL HCHAR(21+PP,28,F1(
¦ PP)+48)
¦ 2370 CALL HCHAR(21+PP,29,F2(
¦ PP)+48)
¦ 2380 NEXT PP
¦ 2390 CALL KEY(0,J,K)
¦ 2400 IF K<1 THEN 2390
¦ 2410 NEXT HH
¦ 2420 INPUT "PLAY AGAIN?":R$
¦ 2430 IF R$="YES" THEN 630
¦ 2440 IF R$="NO" THEN 2470
¦ 2450 PRINT "YES OR NO!"
¦ 2460 GOTO 2420
¦ 2470 CALL CLEAR
¦ 2480 END
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