

YES, WE ARE IN THE SUMMER DOLDRUMS. I hope there is some activity beneath the surface, because there doesn't seem to be any visible. I understand that Astrocade is going to try a "home-party" type of direct selling system. If you are really adept at working the machine, you might contact them about this. We know that the machine virtually 'sells itself' if it can be actively demonstrated, so this may be a good way to make it visible.

MUNCHER cartridge sales seem to have levelled off, and we have a couple dozen left. We don't plan on making any more, so if you still need one, let me know right away. Price is still \$30. And I want to thank Phil Harris for the use of his mailbox - it certainly helped to separate the cartridge orders from the other mass of mail that arrives. And he's decided to move, so that address won't be available in the near future.

BATTING AVERAGE calculates the current and cumulative statistics for a Little League player. Enter today's statistics - times at bat and the results - and allows for error correction. You will have to re-enter all the values if you made a mistake. When you are through, :PRINT the program to tape. Then when you :INPUT the program the next time, all the before-game statistics will show up, ready for the new inputs.

ZGRASS REPORT, while slim, is positive... After many procurement difficulties, all the piece parts have been collected, and the first couple of units are being built up. Specifications of the hardware will be presented in the next issue. I understand that there may be a scheme to provide a no-frill unit and then make options available for those that need them. One option might be the disc controller, for example.

LAYOUT is a little confused this month as material somehow didn't want to fit available space. The first program, CONTROL 30, has instructions on page 137, while the instructions for BATTING AVERAGE are on this page. Then the instructions for the prize winning FROG LEAP are on page 138.

TELEPHONE TRANSMISSION of Curt Johnson's ad on page 140 was accomplished through the services of The SOURCE. Curt sent me a letter via the "SOURCEMAIL" service, and I found it waiting for me one day when I signed into the system. I read the letter with the ad enclosed, and filed it into a storage space always available on the Source, and answered Curt's letter. Then I turned on my printer and captured the ad. One of these days our column writers will be transmitting their material directly into the Apple computer using the Source, or other communications systems, such as Micro-Curier. I haven't gotten up the courage to keep the A-ive on all the time, but when I do, it will be just sitting here, waiting for a telephone to ring and turn on its receiving capability.

```

1 S=15;&(9)=-1;FC=S;V=6;`G=0
2 IF U>1U=U-1
3 X=1;Y=1;Q=1;L=3
10 A=RND (70)-35;B=RND (30)-5
20 C=RND (70)-35;D=RND (30)-5
30 E=RND (70)-35;F=RND (30)-5
50 CLEAR ;LINE 79,43,4;LINE 79,-20,3;LINE -80,-20,3;LINE -80,43,3;LINE 79,43,3
60 BOX 0,-32,159,23,3;BOX 0,-25,150,8,2
105 NT=0;CY=-25;PRINT G
110 LINE 18,11,4;LINE -18,11,3;BOX 0,11,12,4,2
150 TA=194;TB=195;TC=194;VA=12;VB=12;VC=12
200 A=A+RND (5)-3;B=B+RND (3)-2
210 C=C+RND (7)-4;D=D+RND (3)-2
220 E=E+RND (5)-3;F=F+RND (3)-2
230 IF Y=1IF A>-10IF A<10IF B>-20IF B<22Z=1;GOTO 600
231 IF Q=1IF C>-10IF C<10IF D>-20IF D<22Z=2;GOTO 600
232 IF X=1IF E>-10IF E<10IF F>-20IF F<22Z=3;GOTO 600
234 CY=-25;PRINT G," CONTROL 30 "
240 IF JX(1)=-1A=A+4;C=C+4;E=E+6
241 TA=194
245 IF JX(1)=1A=A-4;C=C-4;E=E-6
250 IF JY(1)=-1B=B+4;D=D+4;F=F+6
255 IF JY(1)=1B=B-4;D=D-4;F=F-6
259 GOSUB 500
260 IF Q=0GOTO 500
280 IF L=0GOTO 750
290 IF Y=2IF Q=2IF X=2GOTO 760
295 IF TR(1)=0GOSUB 500;GOTO 200
296 TA=194;TB=195;TC=TA;NM=3;UR=63;VA=15;VB=15;VC=15;VF=3;FOR O=1TO 52;MO=0;NEXT
O
310 N=0;IF Y=1IF A>-3IF A<3;IF B>9;IF B<13;G=G+RND (50)+250;N=1;GOSUB 500;Y=2
320 IF Q=1IF C>-3IF C<3IF D<13IF D>9;G=G+75+RND (100);N=1;GOSUB 500;Q=2
330 IF X=1IF E>-3IF E<3;IF F>9;IF F<13G=G+150+RND (300);N=1;GOSUB 500;X=2
335 LINE 79,-20,4;LINE 0,11,3;LINE -80,-20,4;LINE 0,11,3
336 LINE 79,-20,4;LINE 0,11,3;LINE -80,-20,4;LINE 0,11,3
337 IF N=0GOSUB 500;GOTO 370
361 FOR I=2TO 12STEP 2;BOX 0,11,I,I,3;NU=R;NM=R;VF=R;UR=R;NEXT I;BOX 0,11,I,I,2
362 NM=0;NU=0;VF=0;UR=0;BC=0;FC=S
370 .
410 GOTO 200
500 IF Y=1BOX A,B,8,2,3;BOX A,B-1,6,1,3;BOX A,B,2,3,3
501 IF Q=1BOX C,D,8,2,3;BOX C,D,6,1,3;BOX C,D-1,2,3,3
502 IF X=1BOX E,F,8,2,3;BOX E,F+1,6,1,3;BOX E,F,2,2,3
503 RETURN
600 CY=-25;PRINT " ENEMY IN RANGE ";TA=18;VA=15
601 IF RND (2)=1GOTO 240
602 IF Z=1FOR T=1TO 22STEP 3;BOX A,B,T,T,3;BOX A,B,T,T,3;NEXT T;IF RND (U)=1GOTO
700
603 IF Z=2FOR T=1TO 22STEP 3;BOX C,D,T,T,3;BOX C,D,T,T,3;NEXT T;IF RND (U)=1GOTO
700
604 IF Z=3FOR T=1TO 23STEP 3;BOX E,F,T,T,3;BOX E,F,T,T,3;NEXT T;IF RND (U)=1GOTO
700
605 GOTO 240

```

Dale Low
3020 Cook St.
Victoria, Br.Col CANADA V8T 3S9

QUESTIONS, FROM READERS

WHAT IS THE "PX" FUNCTION AND HOW DO I USE IT?

THE PX FUNCTION WAS INADVERTANTLY LEFT OUT OF THE ASTRO BASIC MANUAL, SO WE HAVE HAD A LOT OF QUESTIONS ON IT'S USE. WHAT IT DOES IS CHECK THE SCREEN TO SEE IF ANY INDIVIDUAL PIXEL IS "ON"(FC), OR "OFF"(BC). YOU CAN ONLY READ, NOT WRITE WITH IT. YOU USE THE FORMAT: PX(X,Y). TRY THE FOLLOWING:

```
10 BOX 0,0,1,1,1
```

```
20 PRINT PX(0,0)
```

THE COMPUTER WILL RESPOND WITH A "1". NOW, ADD LINE 30:

```
30 PRINT PX(10,10)
```

THIS TIME THE COMPUTER WILL RESPOND WITH A ZERO, BECAUSE THE PIXEL AT LOCATION 10,10 WAS "OFF"

HOW CAN I USE FOUR COLORS WITH ASTRO BASIC? TO USE FOUR COLORS EASILY, YOU ARE LIMITED TO TWO COLORS FOR EACH SIDE OF THE SCREEN. FIRST, YOU MUST SPLIT THE SCREEN BY SETTING #(9) TO A SPECIFIC VALUE DEPENDING ON WHERE YOU WANT IT SPLIT. 84 SPLITS IT IN THE VERY CENTER. THEN, BC AND FC CONTROL BACKGROUND AND FOREGROUND ON THE LEFT SIDE OF THE SPLIT, AND #(0)-(83) CONTROL THEM ON THE RIGHT SIDE.

```
10 #(9)=84
```

```
20 #(0)=128;#(1)=126
```

```
30 #(2)=172;#(3)=172
```

```
40 BC=248;FC=82
```

```
50 BOX 0,0,160,44,1
```

THIS DEMONSTRATES FOUR COLORS AT ONCE, BUT AGAIN, ONLY TWO FOR EACH SIDE OF THE SCREEN. NOTE: #(9) IS NORMALLY SET TO 50. (FOR TWO COLOR USE.)

WHERE CAN I GET A COPY OF THE "PEEK'N'POKE" MANUAL?

UNFORTUNATELY, THE "PEEK'N'POKE" HAS BEEN OUT OF PRINT FOR SOME TIME NOW, BUT WE HAVE GOOD NEWS FOR THOSE WHO WANT IT. ONE OF THE AUTHORS, BRETT BILREY, IS CURRENTLY RE-WRITING THE MANUAL SINCE THERE HAS BEEN SO MUCH INTEREST. WE'LL LET YOU KNOW WHEN IT IS AVAILABLE.

WHAT INFORMATION CAN I GET ON PROGRAMMING THE ARCADE IN MACHINE LANGUAGE?

SOME OF THE THINGS AVAILABLE NOW ARE:

- THE 2-80 MINICOURSE BY BARRY ELLERSON.
- THE MACHINE LANGUAGE MANAGER (CARTRIDGE) COMPLETE WITH INSTRUCTION MANUAL BY THE "BIT FIDDLERS".
- GENERAL VIDEO'S ASSEMBLER--DAVE TEACH (NOT AN INSTRUCTION COURSE, BUT A PROGRAM TO DIRECTLY PROGRAM THE ARCADE IN MACHINE MNEMONICS.
- AND BACK ISSUES OF THE ARCADIAN CONTAIN MANY ARTICLES WITH INFORMATION.

CONTROL 30

```
700 CY=20;CX=-40;PRINT "SHIP DAMAGED";FOR T=1TO 50:FC=83;FC=S;NEXT T;CY=20;CX=-40;PRINT "
```

```
701 L=L-1;GOTO 240
```

```
750 `;CLEAR ;PRINT "S:",G;STOP
```

```
760 FC=174;`;CLEAR ;BOX 0,0,160,88,3;BOX 0,0,160,1,3;BOX 0,0,1,88,3
```

```
762 A=RND (88)-44;B=RND (50)-25
```

```
763 BOX A,B,5,5,3
```

```
773 X=X+JX(1);Y=Y+JY(1);BOX X,Y,3,3,3;BOX X,Y,3,3,3;IF TR(1)IF X=AIF Y=B;S=RND (32)+8-5;FC=S;GOTO 2
```

```
774 GOTO 773
```

```

1 .BATTING AVERAGE
2 . BY
3 . DICK KLEIN
4 . 1982
10 CLEAR ;BC=0;FC=156;PRINT "ENTER YOUR STATISTICS FOR TODAY:
15 PRINT
20 INPUT "AB:"*(0);INPUT "1B:"*(1);INPUT "2B:"*(2);INPUT "3B:"*(3);INPUT "HR:"*(
4);INPUT "BB:"*(5);INPUT "SO:"*(6);INPUT "RBI:"*(7)
30 PRINT "EDIT ?";A=KP;IF A=89GOTO 10
50 FOR X=0TO 3;*(8)=*(8)+*(1+X);NEXT X;*(0)=*(0)-*(5);IF *(0)=0I=0;GOTO 60
55 I=*(8)c*(0)b1000;IF RMGOTO 100
60 PRINT "BATTING AVG. TODAY: ",#1,I
70 T=T+1;FOR A=0TO 8;*(9+A)=*(9+A)+*(0+A);NEXT A;GOTO 200
100 A=*(0);U=(Rmb10)cA;V=(Rmb10)cA;W=(Rmb10)cA;PRINT "BATTING AVG. TODAY: ",#1,
".",U,U,W;GOTO 70
200 FOR Z=1TO 4000;NEXT Z;CLEAR ;PRINT "STATISTICS FOR ",#1,T," GAMES
205 PRINT
210 PRINT "# AB: ",#1,* (9)," #HITS: ",#1,* (17)
220 PRINT
230 PRINT "# 1B: ",#1,* (10)," # 2B: ",#1,* (11)
240 PRINT "# 3B: ",#1,* (12)," # HR: ",#1,* (13)
250 PRINT "# BB: ",#1,* (14)," # SO: ",#1,* (15)
260 PRINT " # RBI'S ",#1,* (16)
270 IF *(9)=0R=0;GOTO 300;R=*(17)c*(9)b1000;IF RMGOTO 400
300 PRINT "BATTING AVERAGE: ",#1,R;GOTO 420
400 J=*(9);U=(Rmb10)cJ;V=(Rmb10)cJ;W=(Rmb10)cJ
410 PRINT "BATTING AVERAGE: ",#1,".",U,U,W
420 FOR A=0TO 8;*(0+A)=0;NEXT A
    
```

Richard Klein
 35 Avondale Ave
 Clifton, NJ 07013

How to play FROG LEAP

Use hand control 1, or, for 2 players, use hand controls 1 & 2.

When the frog appears on the right bank, pull your trigger to begin his leap. Your object is to make him land on the first rock. He must land right in the middle of the rock or the poor guy will slip off.

If you think he needs to go higher to get there, push the joystick forward. To bring him down, pull it back. Motions to the right or left have no effect.

Repeat the procedure to get to the next rock, and then to the left bank.

At this point player 2 should trigger to set up his turn, or, if playing alone, player 1 should trigger.

The game ends when a score of 15 is achieved.

Notes on the program

- stmts 2-3 music player
- 7-10 the tunes
- 11-12 game and round initiation
- 13-30 do the jumps
- 32-40 draw the scene
- 42-48 compute trajectory
- 50 draw the frog
- 52-60 decide the success of the leap and do splash
- 62-66 another music player
- 70-76 game initialization
- 78-82 score updating

The music playing routine at stmts 2-3 seems to overlap music with line drawing {stmts 32&38}. This is done by looking in % {20094} to see if it is time to load the next tone yet. If % {20094} + 256 is non-zero, instead of trying to issue %MU= (which would pause}, we RETURN to the line drawing.

Before making your final copy on tape, enter the following numbers into the first 44 locations of the *string. Do it with a direct command like this: FOR N=1TO 44;INPUT *(N); NEXT N

{read down}	30	-11
5	29	-19
9	29	-90
12	28	
14	28	
16	27	
18	27	
20	26	
21	25	
23	24	
24	23	
25	21	
26	20	
27	18	
27	16	
28	14	
28	12	
29	9	
29	5	
30	0	
30	-5	



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In commemoration of our nation's Independence Day, ABC Hobbycraft offers an incredible FIRECRACKER 99 sale on selected WAVEMAKERS software packages! Each of the WAVEMAKERS tapes listed below (for new Astrocade BASIC) normally sells for \$15.95, but you can buy ANY package listed for only \$5.95 -- a savings of \$10.00! But that's not the BIG sale news! With each listed tape you buy for \$5.95, choose ANY other tape on the list for only 99 CENTS MORE! That's right -- you get both tapes for \$6.94! That's a savings of \$24.96! (Buy TWO tapes at \$5.95 each and get TWO more at 99 cents!) Choose from the following WAVEMAKERS tapes:

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- TAPE #4 SLOT MACHINE (original version) / PERVERSION
- TAPE #5 MUSIC COMPOSER / YAHTZEE
- TAPE #8 BACKGAMMON / TOURNAMENT OBSTACLE COURSE
- TAPE #10 LOOK OUT FOR THE BULL
- TAPE #14 COLLISION COURSE

This offer available for a limited time so BUY NOW and SAVE BIG! The super FIRECRACKER 99 sale is ONLY from ABC HOBBYCRAFT -- your ASTROCADE connection!

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ABC also offers a SPECIAL PURCHASE SALE on a limited number of ASTROCADE game systems. These are NOT used or repaired units, but brand new systems in original boxes with 2 control handles, complete instructions, and warranty. This is NOT A CLOSEOUT! ABC HOBBYCRAFT is EXPANDING its support of the ASTROCADE system! But we've made a special purchase of units at a low price, and are passing the savings on to you! To sweeten the deal, ABC HOBBYCRAFT will include a FREE Astrocade BASIC cartridge (a \$59.95 value) PLUS a real collector's item -- a FREE Astrocade DEMO cartridge (a \$29.95 value, previously available only to dealers)! Quantities are very limited on this special price! You get the complete ASTROCADE unit (\$299.95) plus the free BASIC and DEMO carts (\$59.95 + \$29.95), a total value of \$389.95, for ONLY \$149.95! DON'T MISS THIS SALE! BUY NOW!



THE GAME PLAYER

by Michael Prosis

...wrecks his car and falls off his skis in...

- 1) COLLISION COURSE
Wavemakers
- 2) SUPER SLOPE
Esoterica, Inc.

COLLISION COURSE

Now here is a game that is fun to play! Collision Course is just like the coin-op version, and Wavemakers is to be congratulated for making such a true translation of the game for the home computer.

In this one to four player skill game, the object of play is to steer your car through a circular maze until all dots are cleared from the roadway, avoiding the computer-controlled car (which moves in a head-on direction towards you) by skillfully changing lanes at the inter-sections. A driver may increase his speed by squeezing the trigger.

Each player starts with five cars, used one at a time. Collisions with the computer car or the median strip destroys a player's car. Clearing all dots awards a bonus and a new screen, and bonus fuel flags appear periodically. (One must clear all dots before consuming all his fuel. Just like the coin-op RALLY-X.)

COLLISION COURSE presents a respectable challenge to any player, with increasing levels of difficulty with each new screen. Everyone who played the game had only good things to say about it. Sound effects are well orchestrated and the graphics are quite appropriate in quality for this type of game.

In conclusion, this is an excellent game and very enjoyable. I highly recommend it.

SUPER SLOPE

It is no longer necessary to go to your neighborhood Video Arcade and drop a quarter in Atari's ALPINE SKI, for SUPER SLOPE is just as good. As the one and only skiing game for the Astrocade system, this Esoterica ski adventure is extremely good and well thought out.

Control 30 is a challenging game that makes you the captain of the starship Venture which has run off its course into a strange galaxy with vicious aliens. Guide the aliens into your missile sights & fire away. But beware! The aliens shoot at you & if they hit your ship will become severely damaged. Your ship can only absorb 3 hits before disintegrating. Once the warning "Enemy in range" appears, quit toying around with the controls quickly shoot it before it destroys you. You must destroy all aliens of one set of 3 before continuing... that means all aliens even ones that leaves your viewport must be tracked down & destroyed

After one set of 3 have been destroyed a galactic chart will appear looking something like this:



The large blip is the aliens new position and the small blip in the center of the screen is your ship's position. Move the small blip into the center of the large blip & pull the trigger. Voila! The new aliens are now ready to commence battle. Each set of aliens is harder to kill than the last because each new set has better accuracy with its laser. Destroy another set and the chart returns. After each set your shield is recharged and you start the next battle with a fresh 'ship' (Any shots that your ship may have absorbed previously is forgotten.)

Point values are as follows:

♦♦♦ Dynamo.....	250-300pts
♦♦♦ Fargon.....	75-175pts
♦♦♦ Demon.....	150-450pts

(Point Values vary with each set)

In this one-player game, the player directs his skier downhill, avoiding pine trees and large rocks by using the joystick to ski left or right across the slope. A quick tap on the joystick increases the skiers direction from straight to slightly angled; another tap increases the angle further; and another tap will have the skier doing a traverse. The same holds true for either direction. Squeezing the trigger will increase the skiers speed.

As one who enjoys downhill skiing, I am impressed at how well Esoterica has simulated the actual movement of a real skier.

The graphics in SUPER SLOPE are well done, and the sound of skis on snow is well simulated. SUPER SLOPE is a good example of what machine language can do for a game.

There were only a few problems with SUPER SLOPE. The skier often leaves an arm or leg behind when he skims a tree, and we have not been able to determine how the scoring is accomplished. The instructions, which could use some improvement, indicate a score of 50 as not so good but less than 29 as a victory. However, the screen will show a four digit number at the end of play, such as 5471. We deliberately crashed our skier constantly and achieved a score of 2428. What do these numbers mean? (GAME PLAYER will publish an explanation if it receives one from Esoterica.)

The other problem we found is that there is a loud continuous raspy noise during initial play until the skier hits an object. Then the noise will disappear. Perhaps this is a problem with our particular cassette, or it may be a program problem.

Overall, SUPER SLOPE is an excellent game, and will probably be enjoyed even by non-skiers. Those who played it liked it, and it held their attention. It's a good game, folks.

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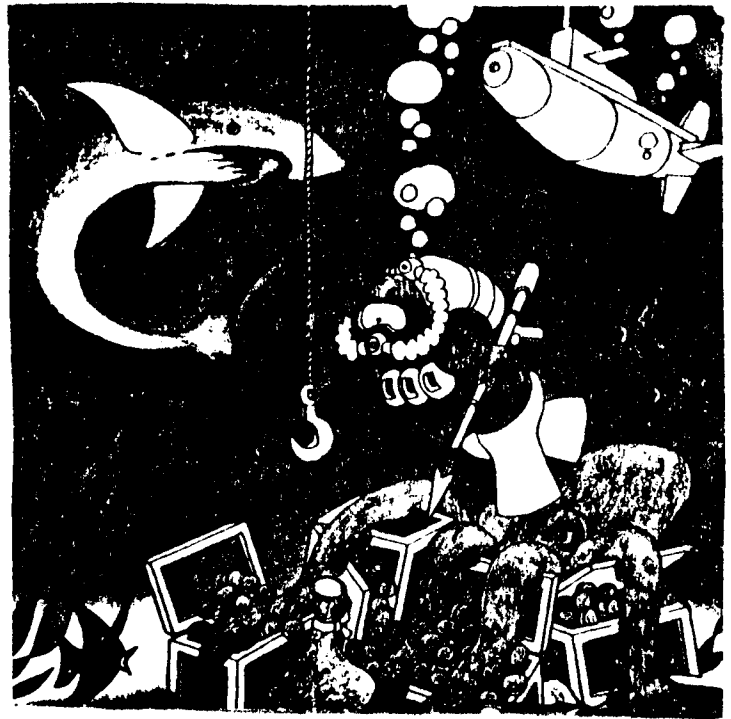
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SPECTRACADE

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New release!!!

BLAST DROIDS

A new game by 'Spectracade'

A one or two player (Head-to-Head) Space Game, in which the players are to destroy Droids flying in outer space. Very similar in action to * Atari's Asteroids Coin-Op. In some screens there are force fields, to protect you if you are on the outside of them. In the higher levels, you must do some fancy flying to maneuver your ship in position. This cartridge has two programs included. One for Game Play and a Training Sector for practicing your flying. BLAST DROIDS has 4 different screens, with different force fields and Droids. Very fast, exciting, action. So, beware, and Blast the Droids.

Now available for \$30.00 ppd.

HOME ARCADE ELECTRONICS

3742 Maxson Road

El Monte, CA 91732

(213) 443-4189

* Asteroids is a copyright of Atari Inc.
DEALER INQUIRIES INVITED



ASTRO-BUGGY
BY PEGGY GLADDEN

WELL, HERE WE ARE AGAIN! AS I'M SURE YOU REALIZE, AS LONG AS YOU GIVE ME SOMETHING TO WRITE ABOUT, I'LL HANG IN HERE & WRITE.

AS I'VE SAID BEFORE, I KNOW THERE ARE OTHER USER GROUPS OUT THERE, AND I'D LIKE TO HEAR FROM YOU. JUST TAKE A MINUTE TO TELL US WHO YOU ARE, WHERE YOU ARE, AND HOW THE REST OF US CAN JOIN YOUR GROUP. CONSIDER IT FREE ADVERTISING. NOBODY CAN TURN THAT DOWN!

I DID GET A NEWSLETTER FROM THE NIAGARA REGIONAL B.U.G. GROUP. KEVIN O'NEILL HEADS THIS GROUP, AND IS LOOKING FOR MEMBERS IN HIS AREA. HE'S TAKING ANY REQUESTS FOR ARTICLES FOR HIS GROUP, AND WILL TRY TO ANSWER ANY QUESTIONS. HOWEVER, SHOULD YOU WRITE TO HIM, PLEASE INCLUDE A S.A.S.E. HE'S ALSO INTERESTED IN ANY SHORT PROGRAMS YOU HAVE WRITTEN YOURSELF. JUST SEND HIM A TAPE, AND INCLUDE THE INSTRUCTIONS. USE 2000 BAUD BASIC PROGRAMMING PLEASE.

ANOTHER ITEM THAT WOULD HELP HIM, IS FOR ANYONE IN HIS AREA TO SEND HIM THE NAME AND ADDRESS OF YOUR RETAILER. THAT WAY, HE CAN GET MORE ASTROCADE BUYERS THE INFORMATION FOR HIS USER GROUP.

ALSO, KEVIN SAYS TO SEND YOUR ADS TO HIM! HE HAS A SEAWOLF/MISSILE CARTRIDGE HE IS WILLING TO SWAP, IF ANYONE WANTS TO SEND HIM AN OFFER.

LAST BUT NOT LEAST, HE'D REALLY LIKE TO SET UP A MEETING DATE FOR HIS GROUP. ANYONE INTERESTED, PLEASE SEND YOUR NAME, ADDRESS, AND GOOD TIME FOR YOU TO MEET. THE ADDRESS IS

KEVIN O'NEILL
NIAGARA REGIONAL B.U.G.
6 WOOD-DALE DRIVE
ST CATHERINES, ONTARIO
CANADA L2T 1Y8

NOW FOR SOME MICHIGAN ASTROBUGS NEWS, AND BELIEVE ME, WE'VE GOT A LOT GOING ON!

IN SEPTEMBER, WE'RE PLANNING TO HAVE AN ASTRO-BASH!!! NO, WE'RE NOT ALL GOING ON A THREE-DAY DRUNK, THIS'LL BE EVEN BETTER!

WE'RE HAVING AN ALL-DAY GET TOGETHER, FOR ALL ASTROCADE OWNERS EVERYWHERE. WE PLAN TO HOLD IT HERE IN MICHIGAN, BUT WE HAVE A LOT OF OUR OUT-OF-STATE MEMBERS COMING. IN FACT, SOME PEOPLE ARE TAKING A LATE VACATION, JUST TO BE HERE.

THERE WILL ALSO BE SEVERAL REPRESENTATIVES FROM OUR SOFTWARE COMPANIES. THEY'LL BE HERE WITH BELLS ON THEIR TOES, AND IDEAS OFF THE TOP OF THEIR HATS! WE HOPE TO BE ABLE TO MENTION THEIR NAMES IN TIME FOR THE NEXT ARCADIAN. UNFORTUNATELY, I HAVEN'T GOT IT ALL TOGETHER YET. HOWEVER, IF I EVER GET IT ALL TOGETHER, I WON'T KNOW WHAT TO DO WITH IT ANYWAY!!!

NEEDLESS TO SAY, I KNOW QUITE A FEW REPS ARE PLANNING ON BEING HERE, AND I'M EXCITED ABOUT IT! WE'RE ALSO PLANNING A B.Y.O.D. (BRING YOUR OWN DINNER) BAR-B-Q. HOWEVER, ONCE AGAIN, WE HAVE A FEW DETAILS TO IRON OUT YET, SO YOU'LL JUST HAVE TO STAY TUNED TO YOUR ARCADIAN FOR FURTHER INFORMATION.

IF THERE ARE STILL SOME OUT THERE WHO HAVEN'T JOINED THE ASTROBUGS, OR WOULD LIKE TO HAVE MORE INFORMATION, PLEASE WRITE TO:
MICHIGAN ASTROBUGS
59400 NINE MILE RD.
SOUTH LYON, MI 48178
OR CALL: (313) 437-3984 OR 437-7303
DUES ARE ONLY \$5.00 YEARLY, AND WELL WORTH THE PRICE!!!

ALL OF YOU USER GROUPS OUT THERE, SEND ME A NEWSLETTER OR AN ARTICLE. LET'S HEAR FROM YOU! ALSO, IF ANYONE HAS ANY IDEAS FOR OUR ASTRO-BASH, OR THE CLUB, PLEASE WRITE! WE'RE ALWAYS OPEN TO SUGGESTIONS. 'TILL NEXT TIME.....PEGGY.

PRODUCT REVIEW
BLUE RAM UTILITY 3.2
(PERKINS ENGINEERING)
BY DON GLADDEN

THE "BLUE RAM UTILITY" IS A FANTASTIC TOOL FOR ANYONE INTERESTED IN MACHINE CODE PROGRAMMING. USED ALONG WITH THE BLUE RAM MEMORY EXPANSION (16 OR 32K) AND EXTENDED BASIC CARTRIDGE, IT ALLOWS YOU TO ENTER, EDIT, DISASSEMBLE, OR DO JUST ABOUT ANYTHING WITH MACHINE LANGUAGE PROGRAMS. (IN HEX CODE.) THOUGH IT IS NOT AN ASSEMBLER, IT IS GREAT FOR TRYING OUT MACHINE CODE SUBROUTINES, MODIFYING PROGRAMS, (EVEN CARTRIDGES) AND LISTING MACHINE CODE WITH THE DISASSEMBLER TO SEE HOW IT WAS WRITTEN. SOME COMMANDS INCLUDE: EDIT, DASM (DISASSEMBLE), FILL (FILLS A BLOCK OF MEMORY WITH A SPECIFIED VALUE), MOVE (MOVES A BLOCK OF MEMORY), SWAP (SWAPS TWO BLOCKS), LOAD, SAVE, LIST (TO PRINTER), SEND & RECV (FOR A TELEPHONE MODEM), UNPK (UNPACKS AND CONVERTS A PROGRAM FROM ASTRO-BASIC TO B.R. BASIC), COPY (COPIES A CARTRIDGE TO THE B.R. MEMORY), DIAG (TESTS MEMORY IN THE BLUE RAM), BURN, TEST, CALL, AND MORE!

I HAVE FOUND THIS TAPE TO BE INVALUABLE IN MY PROGRAMMING, AND HIGHLY RECOMMEND IT TO ANYONE WHO HAS A BLUE RAM SYSTEM. (IT WILL NOT WORK WITH OTHER MEMORY EXPANSIONS.) ONE OF THE BEST THINGS ABOUT IT IS IT'S PRICE. ONLY \$5.00 POSTPAID FROM:

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PROGRAM ANALYSIS BY KEN LILL

IN THIS COLUMN I INTEND TO "TEAR-DOWN", EXAMINE AND POSSIBLY RE-CONSTRUCT ALREADY PUBLISHED PROGRAMS - EXPLAINING EACH DETAIL.

IN THIS FIRST ARTICLE I WILL TEAR APART MY FIRST PROGRAM PUBLISHED IN THE ARCADIAN! THE PROGRAM WAS TITLED "GHOST FLEET" AND WAS MY FIRST ATTEMPT AT PROGRAMMING A COMPLETE PROGRAM FROM ONE OF MY OWN IDEAS. IT TOOK ME SEVERAL MONTHS AND AN AWFUL LOT OF QUESTIONS TO BE ABLE TO UNDERSTAND WHAT I WAS DOING AND WHY. THE EXPERIENCE THAT I HAVE GAINED IS WHAT I AM NOW SHARING WITH ALL OF YOU READERS. IF YOU WOULD LIKE TO SEE A CERTAIN PROGRAM APPEAR IN THIS COLUMN, PLEASE WRITE!

NOW ON TO THE PROGRAM!!

```
>1 Z=-1:NT=0:BC=0:&(16)=69
```

IN THIS LINE, THE 'REGISTER' (VARIABLE) "Z" IS SET TO THE QUANTITY OF NEGATIVE ONE (-1). THIS IS THE SAME AS SAYING "Z=255", EFFECTIVELY, WHEN USING THE &() PORTS! USING -1 SAVES ONE BYTE IN THAT LINE AND WE ALL KNOW HOW IMPORTANT IT IS TO DO THAT! THE REASON THAT I AM GOING TO SET IT TO THIS NUMBER HERE IS BECAUSE EVERY TIME THAT I USE THE QUANTITY 255 OR -1 IN THE PROGRAM, ALL I HAVE TO USE IS THE LETTER 'Z', FOR A PORT! NEXT, YOU'LL NOTICE, I SET THE NOTE TIMER (NT) EQUAL TO ZERO THIS SHUTS OFF ALL 'MU' NOTES THAT ARE NORMALLY HEARD WHEN A LETTER IS PRINTED ON THE SCREEN! WHEN USING ASTRO BASIC, THIS PORT SHOULD BE SET TO -1, OR 255 IN ORDER TO GET THE MUSIC PORTS TA-TC TO PUT OUT ANY SOUND BALLY BASIC AND EXTENDED BASICS DO NOT USE THESE SYMBOLS AND WILL PUT OUT THE SOUND WHEN THE NT=0!

THE NEXT THING I DID WAS MAKE MY BACKGROUND COLOR (BC) BLACK. THIS COMMAND DOES NOT HAVE TO BE INCLUDED IN THE PROGRAM FOR ASTROBASIC OR EXTENDED BASIC, PROVIDING THAT YOU 'TELL' THE COMPUTER WHAT VALUE THIS IS TO BE BEFORE YOU PRINT THE PROGRAM, AS THIS VARIABLE AND IT'S VALUE ARE 'DUMPED' TO TAPE ALONG WITH THE PROGRAM MATERIAL! THOSE OF YOU THAT ARE STILL USING BALLY BASIC MUST PUT THIS IN! ONE THING TO REMEMBER IS THAT IF YOU ARE GOING TO CHANGE YOUR BC DURING YOUR PROGRAM, AND YOU WANT IT TO GO BACK TO THE ORIGINAL, YOU MUST PUT THIS IN EACH TIME!

THE LAST COMMAND I PUT IN THIS LINE IS TO SET UP THE MAIN OSCILLATOR FOR OUR SOUNDS TO THE VALUE OF 69 [&(16)=69]! BY VARYING THE SIZE OF THE NUMBER 69 TO ANY NUMBER BETWEEN 0 AND 255, CHANGES THE 'PITCH' OF ALL OF OUR SOUNDS, WITH '1' MAKING IT VERY HIGH AND 255 MAKING IT VERY LOW! 0 TURNS IT OFF! LINE #2 COULD ACTUALLY BE ADDED TO THIS LINE AT THIS POINT, BY PUTTING A SEMICOLON AND THEN THE COMMAND - Q=0! DOING IT THIS WAY SAVES 2 BYTES, EACH TIME YOU ENTER A LINE # INTO THE PROGRAM, THE COMPUTER USES UP 2 OF YOUR PRECIOUS BYTES TO 'RESERVE' THE PLACE THAT THIS LINE STARTS AT! ALL 'GO' COMMANDS

TAKE UP 1 BYTE, ALL OTHER SYMBOLS, LETTERS, NUMBERS, AND 'COMMAND WORDS' LIKE PRINT, GOTO, AND GOSUB, FOR EXAMPLES, USE ONLY ONE BYTE FOR EACH TIME YOU USE THEM, PROVIDING YOU USE THE 'WORDS' KEY FIRST. TYPING IN A WORD LIKE 'RETURN' WITH THE SPACE AFTER IT USES UP 7 BYTES IF EACH LETTER WERE TO BE ENTERED INDIVIDUALLY! THIS IS ONE VERY IMPORTANT THING TO REMEMBER WHEN TRYING TO GET ALL YOU CAN OUT OF THE SMALL BUT POWERFUL 1800 BYTES THAT WE HAVE IN OUR 'PALO - ALTO TINY BASIC' CARTRIDGES! LINE # 4 LOOKS LIKE THIS:

```
>4 CLEAR ;F=-48;G=50;H=H+2;I=-G;J=45;K=0
```

THIS LINE IS VERY SIMPLE. FIRST, THE SCREEN WILL CLEAR ITSELF, LEAVING ONLY THE BACKGROUND COLOR. THE REST OF THE LINE JUST SETS DIFFERENT VARIABLES TO DIFFERENT AMOUNTS! LINE # 5 HAS MORE IN IT!

```
>5 FOR A=129TO 145STEP 4;BOX 0,0,A,H,3;H=H+2;NEXT A;GOSUB 6;GOSUB 9;GOTO 90
```

IN THIS LINE, I MADE MY 'VIEW SCREEN' USING A 'LOOP' [FOR-TO-NEXT] WITH A BOX COMMAND IN THE MIDDLE! THEN I TOLD IT TO GO TO LINE # 6 AND DO ALL OF THE COMMANDS THERE UNTIL THE COMMAND "RETURN" IS REACHED. WHEN THIS HAPPENS, COME BACK TO THIS PLACE IN LINE # 5 AND DO WHAT THE NEXT COMMAND SAYS TO DO! THE NEXT COMMAND IN THIS CASE IS THE SAME TYPE OF COMMAND, EXCEPT THAT THE LINE THAT THE ARCADE MUST 'JUMP' TO NOW IS LINE # 9! WHEN THE FIRST "RETURN" IS REACHED, THE ARCADE THEN GOES BACK TO THE NEXT COMMAND IN LINE # 5, WHICH IS TO 'JUMP', OR GOTO LINE #90 AND CONTINUE ON FROM THERE! LINE NUMBER 6 CAN BE SHORTENED FROM:

```
>6 FC=7;BOX 0,0,132,58,2;FOR A=0TO 70;B=RND(128)-64;C=RND(58)-29;BOX B,C,1,1,1;NEXT A;RETURN
```

TO THIS:

```
>6 FC=7;BOX 0,0,132,58,2;FOR A=0TO 70;BOX RND(128)-64,RND(58)-29,1,1,1;NEXT A;RETURN
```

BY REMOVING THE COMMANDS THAT USED "B" AND "C", I WAS ABLE TO SAVE 8 BYTES! LET'S SEE JUST WHAT I DID. THE FIRST THREE COMMANDS IN THIS LINE ARE EASY TO UNDERSTAND, AND THEY MUST REMAIN AS IS. EACH TIME THAT THE LOOP RECYCLES, THE ARCADE MUST RESET THE VALUES OF THE REGISTERS 'B' AND 'C' IN THE FIRST LINE # 6 TO A RANDOM NUMBER SOMEWHERE BETWEEN THE NUMBERS OF -64 TO +64 FOR B AND -29 TO +29 FOR C! THEN, WHEN IT MAKES THE BOX IT MUST CHECK TO SEE WHAT NUMBERS ARE IN THE REGISTERS SO THAT IT CAN PLACE THE BOX AT THE RIGHT LOCATION! IN THE 'SHORTENED' LINE # 6, THE 2 REGISTERS ARE NOT SET, INSTEAD, THE BOXES ARE AUTOMATICALLY PUT AT RANDOM PLACES BECAUSE THE COMMANDS ARE INSIDE OF THE BOX COMMAND! NOW WE COME TO THE "RETURN" COMMAND THAT MUST BE USED EACH TIME THE "GOSUB" COMMAND IS USED! IF YOU FAIL TO USE "RETURN", AFTER THE PROGRAM RUNS THROUGH A FEW TIMES, YOUR PROGRAM WILL LOCK UP ON YOU! THIS HAPPENS BECAUSE THE 280 'STACK' [KNOWN



ALSO AS IT'S OWN ON-CHIP MEMORY] RUNS OUT OF SPACE AND CANNOT PROCESS ANY MORE COMMANDS!

LINE # 7 IS ALSO A SUBROUTINE.

```
>7 BOX C,D,24,5,1;RETURN
```

THIS LINE PUTS A BOX 24b5 AT LOCATION C,D! LINE # 8 SHUTS OFF THE 'VOLUMES' OF THE 3-VOICE MUSIC PROCESSOR. FOR 'ASTROBASIC' JUST USE THE DOWN ARROW INSTEAD OF THE COMMANDS &(21)=0;&(22)=0. FOR 'BLUE RAM' EXTENDED BASIC, USE PL. [PLAY], WITHOUT GIVING IT ANY ADDRESS TO 'PLAY' FROM! LINES 9-10 ARE A SUBROUTINE. THEY LOOK LIKE THIS:

```
>9 CX=-39;CY=36;PRINT "_GUNS BOMBSa";
  CX=-39;CY=-37;PRINT "_SHIELDS FUELa"
>10 C=58;D=36;GOSUB 7;C=-C;GOSUB 7;D=-37;
  GOSUB 7;C=-C;GOSUB 7;RETURN
```

THE UNDERLINE SYMBOL IS THE LEFT ARROW OF OUR BASICS, AND THE SMALL A IS THE RIGHT ARROW

THE FIRST COMMAND SAYS TO PUT THE FIRST LETTER OF THE NEXT PRINT COMMAND 'CENTERED' AT THE "X" POSITION OF -39, WHICH IS 39 'PIXELS' TO THE LEFT OF BEING IN THE CENTER OF YOUR TV! THE NEXT COMMAND DOES THE SAME FOR THE UP-DOWN POSITIONING [A NEGATIVE NUMBER IS LOWER THAN CENTER!]. THE REST OF LINE # 9 IS SELF EXPLANATORY! LINE # 10 PUTS ON THE SCREEN THE BOXES DESCRIBED IN SUBROUTINE # 7. CHANGING POSITIONS AS 'C' AND 'D' ARE CHANGED! LINE 20 IS AS FOLLOWS:

```
>20 BOX F,36,2,3,2;F=F-4;IF F<-70CX=-67;
  CY=-36;PRINT "DEAD",
```

THIS LINE IS USED FOR 'DECREASING' THE 'GUN' GAUGE BY PLACING A BOX IN THE GAUGE AT THE CURRENT POSITION OF THE VARIABLE 'F'! THEN IT LOWERS THE NUMBER IN 'F' SO THAT THE NEXT TIME YOU USE YOUR GUNS, THE BOX WILL BE PUT IN THE RIGHT PLACE. THESE 2 COMMANDS CAN BE SWITCHED AROUND AND THE SAME EFFECT WILL TAKE PLACE. THE ORDER OF EVENTS IS CONTROLLED BY YOU, THE PROGRAMMER! NOW WE COME TO AN "IF" COMMAND. THIS PARTICULAR ONE SAYS, IN EFFECT, 'IF THE NUMBER THAT IS IN THE VARIABLE 'F' IS LESS THAN (<) -70, THEN SET UP THE PRINT COMMAND VARIABLES AND PRINT OUT THE WORD "DEAD". THE COMMA AFTER THE 'END' QUOTATION MARK MEANS TO CONTINUE PRINTING ON THE SAME LINE, RIGHT AFTER THE LAST LETTER PRINTED. WHEN THE NEXT COMMAND TO PRINT IS GIVEN, UNLESS THE 'CX' OR 'CY' VALUES ARE CHANGED BY THE PROGRAM! I PUT THIS IN TO KEEP FROM PRINTING OVER THE ARROW!

NEXT TIME, WE WILL START AT LINE # 30! PLEASE WRITE TO DON GLADDEN OR MYSELF FOR ANY HELP OR SUGGESTIONS YOU MIGHT HAVE!

REMEMBER! KEEP ON BUGGIN'!!!

YOUR FRIENDLY 'DE-BUGGER' - KEN LILL
6608 S. CAMPBELL
CHICAGO, ILL

60629

CHARACTER DISPLAY IN EXTENDED BASIC A TUTORIAL BY GEORGE MOSES

RECENTLY, I TRIED TO CALL THE GAME OVER ROUTINE USING THE BLUE RAM EXTENDED BASIC AFTER ALL, THE ROUTINE EXISTS BURIED IN THE ASTROCADE'S 8-K OF ON-BOARD ROM JUST WAITING FOR ME TO INVOKE IT, INCREDIBLE WIZARD THAT I AM. SO OFF I GO, CONJURING UP THE BIG CALL FEVERISHLY TYPING HEX CODES TO DISPLAY CHARACTERS ENLARGED 8X. BUT I GOT STRIPED BOXES WHERE THE LETTERS "GAME OVER" WERE SUPPOSED TO BE. BUT THE ROUTINE WORKED PERFECTLY WHEN I DISPLAYED THE CHARACTERS IN THEIR 1-X SIZE. THE SOLUTION? I ASKED JAY FENTON WHEN HE WAS IN TOWN FOR OUR ANNUAL FISHING TRIP.

JAY SAYS "IF ENLARGED CHARACTERS ARE TO BE DISPLAYED THE STACK POINTER MUST BE RELOCATED TO SCREEN RAM TO ALLOW MAGIC RAM TO OPERATE THE EXPANDER. THIS ROUTINE WILL DO THE JOB."

THE ROUTINE:

```
8000 F5 ;PUSH AF (SAVE REGISTERS)
8001 05 ;PUSH BC
8002 05 ;PUSH DE
8003 E5 ;PUSH HL
8004 210000 ;LD HL,0000 CLEAR HL
8007 39H ;ADD HL,SP SAVE OLD STACK
8008 31FF4F ;LD SP,4FFF MOVE SP TO SCREEN
800B E5 ;PUSH HL SAVE HL ON STACK
800C FF ;RST 38H PREPARE FOR SUB CALL
800D 33H ;SUBROUTINE 32+1 (SYSSUCK)
800E 3C ;REGISTER E HORIZ. POSITION
800F 14H ;REGISTER D VERTICAL POSITION
8010 DC ;REGISTER C DISPLAY OPTION BYTE
;ENLARGE 8X, OR IT TO THE SCREEN
;TO ENLARGE 2X USE 5C; FOR 4X
;USE 9C; TO XOR IMAGE USE:
;8X=EC, 4X=AC, 2X=6C
8011 41H ;HEX-ASCII CODE FOR LETTER "A"
;SUCKED INTO REGISTER A
8012 E1 ;POP HL RETRIEVE OLD STACK ADDR
8013 F9 ;LD SP,HL REESTABLISH STACK
8014 E1 ;POP HL RESTORE ALL REGISTERS
8015 01 ;POP DE
8016 01 ;POP BC
8017 F1 ;POP AF
8018 09 ;RET GO BACK TO BASIC
```

I TYPED THIS PROGRAM IN AT 8000H USING THE NEW BLUE RAM UTILITY 2.3 JUST RELEASED BY PERKINS ENGINEERING. THE UTILITY IS AN 8K MACHINE LANGUAGE PROGRAM THAT RESIDES FROM 6000H TO 7FFF. IT HAS, AMONG OTHER FEATURES, A FULL SCREEN EDITOR OF OPCODES AND A NICE DISSASSEMBLER SO, AFTER TYPING IN THE ABOVE HEX CODES USING THE SCREEN EDITOR, ALL I HAD TO DO WAS GIVE THE COMMAND "DASM" 8000H AND THE DISSASSEMBLER PRODUCED THE PRINTOUT YOU SEE ABOVE. IT WILL ALSO DISSASSEMBLE A CART-RIDGE OR ANY OTHER MACHINE LANGUAGE PROGRAM THE SAME WAY!

THE ROUTINE TO MOVE THE STACK POINTER SHOWN ABOVE IS RELOCATABLE TO ANY FREE RAM YOU WISH TO LOAD IT INTO. ALL YOU HAVE TO DO TO USE IT IS TO CALL IT FROM BASIC IN THE CASE OF THE ABOVE ROUTINE STASHED AT 8000H YOU WOULD USE CALL! 8000

July 22 1983



Vol 5 No 9

PRIZE WINNER!

```

1 GOTO 9
2 M=%(R)c256; IF (M=13)+%(20094)c256RETURN
3 MU=M;R=R+1;RETURN
4 .146b10007000+60000 -1160005000400000
5 .111111103010c60c50100000003555555060503011-3-3201011-302010c50100000302000
003010000000
6 .6b1653212-321-302001-321-302011000
7 .65535035030000 65505053000000 366553211-302010c6c53300202100000000
8 CLEAR ;GOSUB 70
9 CLEAR ;GOSUB 32
10 X=50;IF TR(J)=0GOTO 13
11 GOSUB 42;IF Q=1GOTO 26
12 D=1;GOSUB P;C=B-1;D=1;GOSUB P;GOSUB 78;R=-24479;NT=8;GOSUB 62
13 X=B;IF TR(J)=0GOTO 16
14 GOSUB 42;IF Q=1GOTO 26
15 D=2;GOSUB P;C=A-1;D=1;GOSUB P;GOSUB 78;R=-24389;NT=14;GOSUB 62
16 X=A;IF TR(J)=0GOTO 22
17 GOSUB 42;D=2;GOSUB P;C=X;D=2;GOSUB P;GOSUB 78;R=-24351;NT=9;GOSUB 62
18 J=K-J;GOSUB 80
19 IF TR(J)=0GOTO 28
20 FC=0;GOTO 12
21 GOSUB 80;FC=180;R=-24519;NT=45;FOR N=0TO -44STEP -1;LINE 28,0,3;LINE -80,N,
1;GOSUB 2;NEXT N;BOX 60,-22,40,44,1
22 FOR N=40TO 50;XY=-5080;LINE N,-44,2;NEXT N
23 BOX -5,2,9,5,1;FOR N=-11TO 1;LINE -5,7,4;LINE N,4,1;NEXT N;BOX -7,3,1,1,3;B
OX -4,3,1,1,3;BOX 0,1,1,1,1;BOX -8,7,1,3,1
24 BOX 45,5,10,11,1;BOX 45,10,14,2,1;BOX 38,1,4,7,1;BOX 38,1,3,5,3;BOX 38,1,3,
3,3;BOX 43,7,2,2,2;BOX 46,7,2,2,2;BOX 43,3,2,2,2
25 FOR N=-65TO -53STEP 3;LINE -59,35,4;LINE N,-20,3;NEXT N;LINE -59,35,4;FOR N
=1TO 99;GOSUB 2;LINE RND (60)-80,RND (44),3;NEXT N
26 A=RND (10)-35;B=RND (10)+4;BOX A,-35,8,2,1;BOX B,-35,8,2,1;C=50;D=2;NT=0;GO
SUB P;RETURN
27 E=0;F=0;FOR N=1TO 900;X=X-1;F=F+JY(J);H=Fc2;IF H<0IF N>30H=Hb(N-30)
28 G=E+*(N)+H;Y=G-35;E=G-*(N);IF G<1GOSUB 52;RETURN
29 BOX X,Y,1,1,3;IF H F=0
30 NEXT N
31 LINE C-1,-31,4;LINE C,-31,D;LINE C-1,-34,D;LINE C-2,-32,4;LINE C+2,-32,D;LI
NE C+3,-33,D;LINE C-1,-33,D;LINE C+2,-34,D;LINE C+1,-34,D;RETURN
32 Q=0;IF X<-50RETURN
33 IF X<A+2IF X>A-3RETURN
34 IF X<B+2IF X>B-3RETURN
35 NT=-1;Q=1;&(23)=255;&(21)=255;LINE X,-40,4;FOR N=1TO 12;FC=12;LINE RND (50)
-25+X,RND (40)-35,3;FC=BC;LINE RND (8)-4+X,RND (8)-38,3
36 NEXT N;FC=12;NT=0;`RETURN
37 FOR N=RTO 0;Z=%(N)c256;IF Z=13N=0;GOTO 66
38 MU=Z;IF TR(J)N=0
39 NEXT N;NT=0;RETURN
40 NT=0;J=1;PRINT "FR0G LEAP";PRINT " B&D IBACH #PLYRS?"
41 CX=-30;PRINT I,;I=1;K=2;IF KN(1)>0I=2;K=3
42 IF TR(1)=0GOTO 72
43 P=50;*(51)=0;*(52)=0;RETURN
44 *(50+J)=*(50+J)+1
45 CX=-25;FOR N=1TO I;PRINT *(50+N),;NEXT N;CX=39;TV=93+2bJ;IF *(51)<15IF *(52)
<15RETURN
46 CX=-25+Jb48;PRINT "*"

```

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(ps. ads in this section are free. I'd prefer typed copy, ready to paste in place, like
the first two above...)

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