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><><    TRICKS OF THE TRADE    ><><
><><><><    TUTORIAL #3    ><><><><
><><><><    MIKE WHITE    ><><><><
><><><><  COUNTY LINE #2  ><><><><
><><><><  R.D.#1 BOX 373  ><><><><
><><><><  WAKEMAN , OHIO  ><><><><
><><><><      44889       ><><><><
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FOR NEXT LOOP LOCKING :

IS WHAT I CALL A METHOD OF TIEING UP A VARIABLE SO AS TO CAUSE A FOR NEXT LOOP TO RUN (POSSIBLY) FOREVER. I TOLD YOU LAST MONTH WHY YOU MAY WANT TO DO SO. ALSO, I SAID TO LOOK INTO "MONKEY JUMP", OR "QUADRA". IN "MONKEY JUMP" YOU WILL FIND THIS:

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110 FOR F=1TO 4STEP 0;IF E=38E=0;GOTO 230
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DID YOU GUESS IT WAS THIS EASY? IN "U.F.O. ATTACK" (PART OF "QUADRA"), YOU CAN FIND THESE LINES: (BETWEEN OTHERS)

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37 FOR R=MTO Q;GOSUB 6;IF W<0BOX Z,-39,1,3,1;IF TR(U)GOSUB 6;C=Z
;W=0;GOTO 11
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40 IF L=1IF N<2R=R-1;Y=Y+F;GOSUB 8;IF V=4Y=Y-5
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THE LOOP IN LINE 37 DEFAULTS TO STEP 1. THE "R=R-1" IN LINE 40 LOCKS THE LOOP. THIS CAUSES THE FLYING SAUCERS TO STOP WHILE ONE LITTLE GUY COMES ACCROSS, GUNS BLAZING, LIKE "GALAXIAN". THE LOOP NORMALLY MOVES THE U.F.O.'S "SPACE INVADER" STYLE. (ONE AT A TIME). IF YOU TRY CHANGING THE "TO" OR "STEP" VALUE AFTER THE LOOP STARTS, YOU ARE IN FOR A DISAPPOINTMENT. THESE VALUES ARE "PUSHED" ONTO THE "STACK" AND ARE QUITE UNTOUCHABLE. TRY:

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10 FOR A=0TO BSTEP C
20 B=5;C=1
30 PRINT A
40 NEXT A
ENTER>B=100;C=10;RUN
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THE EXPRESSION "ENTER>" MEANS ENTER WITHOUT A LINE # AND EXECUTE IMMEDIATELY. YOU WILL FIND THAT THE VALUES DON'T CHANGE AND RND #'S CAN BE PUT IN DIRECTLY AS WELL AS USING B OR C IN THE LOOP FOR ANYTHING ELSE. SEE LINE 90 OF "CROSSING SIGNAL", THIS MONTH'S PROGRAM.

"CROSSING SIGNAL" IS A DEMONSTRATOR OF "SCREEN TAPING" AND "AUTO RUN". THE PROGRAM OPERATES ON THE PRINCIPLE THAT &(9) CAN BE MOVED INSIDE A LOOP. THE TITLE TO "THE SECRET OF PELLUCITAR", (WHICH HAD RAVE REVIEWS) DID THE SAME TRICK. THE PROGRAM ENDS AT LINE #110, AND BEYOND IS A TAPE COPY ROUTINE. NOTICE THE SCREEN IS ASSEMBLED AND TAPED GRAPHICS SHOWING. ALSO, IT "AUTO RUNS"!!!

THE "SECRET" BEHIND "AUTO RUN", IS THAT THE MICROPROSSER, THE Z80,THE BRAIN OF THE MACHINE (IF YOU WILL), KEEPS TRACK OF WHERE IT'S AT IN A BASIC PROGRAM WITH ITS OWN DE REGISTER. SO, DE STOPS AT THE WORD "INPUT" WHEN WE LOAD A TAPE. TO GENERATE AUTO RUN WE MUST FUDGE IN ";RUN" SO THAT THE ARCADE "THINKS" IT SEES ":INPUT ;RUN ". USING ":PRINT %(16384),1887" TAPES JUST TO THE WORD "RUN ". NORMAL :PRINT STOPS SHORT OF THE LINE INPUT BUFFER, AND THEREFORE CANNOT BE USED. ON PAGE 103 ASTRO BASIC HANDBOOK IT SAYS THAT THE LINE INPUT BUFFER STARTS AT %(20154). LEAVING TWO BYTES FOR THE :INPUT MAKES %(20156). ON PAGE 98 SAME BOOK, YOU SEE THE CODE FOR ";" IS 59 (TRY TV=59), AND FOR "RUN" IT'S 106 (TRY TV=106). TO GET THE RIGHT ORDER WE MUST MULTIPLY THE SECOND ENTRY (THE "RUN") BY 256. THAT GIVES 106b256+59=27195 WHEN THE SCREEN IS IN PLACE, AS IT IS WHEN WE TAPE THIS MONTH'S PROGRAM, IT'S EASIER TO USE THIS ONE POKE. OTHERWISE USE:

ENTER>PRINT ";RUN ";:PRINT %(16384),1887

    THIS HAS THE ADDED BENIFIT OF ALLOWING USE OF THE BUFFER FROM TAPE. SEE WHAT WE DID TO "GOLF" LAST MONTH IN THIS COLUMN. YOU MAY EVEN START YOUR PROGRAMS OUT IN THE MIDDLE WITH A GOTO AND THIS AUTO RUN. THE BRB QUADRA DOES!!
    TO ALLOW SUCH TAPINGS TO BE FILE SEARCHED YOU MUST USE THE MODIFIED FILE SEARCHER SUGGESTED LAST MONTH. YOU DON'T HAVE TO :INPUT W,3 HOWEVER. THAT WAS SO DIFFERENT LENGTH PROGRAMS COULD BE FILED. "FOR D=0TO 11000;NEXT D" DOES IT ALL FOR AB. IF YOU WANT TO USE THE LINE INPUT BUFFER FROM TAPE IN BRB, AND NOT START YOUR SLAVE PROGRAMS OUT WITH "1 ..", ADD LINE 5:

5 .ABCD

    AND CHANGE LINES 1,30,AND 60, TO:

1 ..;:INPUT ;RUN
30 NEXT G;DATA A,>1,>5+1,27948,C;FOR E=ATO BSTEP 2;%(D)=%(E);
D=D+2;NEXT E;CC=5;PRINT "Y0UR CH0ICE?
60 :INPUT W;CLEAR ;CY=12;IF Y=G CC=6;CX=-17;PRINT "L0ADING";
GOSUB 80;%(C)=8224;CALLB

    AND TAPE USING:

ENTER>PRINT ";RUN ";%(>5+1)=11537;%(>5+3)=-13971;
:PRINT %(24576),1688 [REC]

    WHEN YOU SEE [REC] IN ANY OF MY PROGRAMS IT MEANS START TAPE RECORDING THEN PRESS GO. IF ANY OF MY PROGRAMS PUZZLE YOU, DON'T HESITATE TO WRITE. A S.A.S.E. SPEEDS UP REPLYS.
    THESE CHANGES WERE ORIGIONALLY WRITTEN TO TAPE BRB 4K SCREEN AND TEXT SIMULTANEOUSLY. THE ATTEMPT FAILED, BUT LEFT THE "LINE INPUT BUFFER CALLBACK ROUTINE" (AS I CALL IT) IN ITS WAKE!

WHEN THE PROGRAM "AUTO RUNS" IT SEES THE PERIODS IN LINES #1+5, IGNORING THOSE LINES. WHEN IT GETS TO ALTERED LINE #30, IT SETS 3 VARIABLES, THEN MOVES THE CONTENTS OF LINE #1 TO THE LINE INPUT BUFFER BY PEEK AND POKE, (SAME WAY "REPACK" MOVED THE TEXT TO PACK AND UNPACK). WHEN THE CORRECT PROGRAM IS FOUND, (IN LINE #60), TWO SPACES ARE POKED INTO THE FIRST TWO BYTES OF THE LINE INPUT BUFFER (256b32+32=8224). "TV=32" GIVES A SPACE. (SEE PAGE 98 ASTRO BASIC HANDBOOK). I'M NOT SURE EXACTLY WHY THIS HAS TO BE "SPACE SPACE SEMICOLON", BUT BELIEVE ME, IT WORKS THIS WAY. TO GET THE COMPUTER BACK INTO THE LINE INPUT BUFFER REQUIRES MACHINE CODE. YOU CAN'T DO IT FROM BASIC, EVEN BRB! WHEN WE TAPE THE PROGRAM, WE POKE A VERY SHORT ROUTINE INTO LINE #5, AND CALL IT FROM THE END OF LINE 60. THE MACH CODE PART IS:

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LIBCBR.LD.DE,27949   ;FUDGES A NEW DE VALUE
      .RET.          ;RETURNS TO BASIC INSIDE LINE INPUT BUFFER
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REMEMBER THAT THE DE REGISTER (INSIDE THE Z80) IS THE BASIC TEXT PROGRAM POINTER. LIBCBR IS A LABEL , MEANING "LINE INPUT BUFFER CALLBACK ROUTINE". ".LD.DE,27949" IN ASSEMBLY LANGUAGE MEANS LOAD DE WITH 27949, (ADDRESS OF 2ND BYTE OF LINE BUFFER). ".RET." IN ASSEMBLY CODE MEANS RETURN (TO BASIC), AT THE PLACE THE DE REGISTER NOW INDICATES!! WELCOME TO THE WONDERFULL NEW WORLD OF MACHINE LANGUAGE! TO GENERATE THE TWO POKES I USED "THE ASSEMBLER" [FROM GENERAL VIDEO]. A MUST PURCHASE! ALL EB USERS!!
    BE SURE TO LEAVE 5 BYTES AHEAD OF THE SEMICOLON ON YOUR SLAVE PROGRAMS. LIKE THIS:

ENTER>PRINT "   ;RUN ";:PRINT W,3;:PRINT %(24576),1766

    3 SPACES ARE ADDED TO THE QUOTE. ALSO "1766" TAPES THE ENTIRE LINE INPUT BUFFER. (IN BRB)
    TO STOP "AUTO RUN" ENTER>CLEAR ;PRINT ;:INPUT
    AND PLAY THE TAPE. THIS DISPLACES THE DE REGISTER AND ALLOWS YOU TO LIST THE PROGRAM AND LEARN ITS CONTENTS. DON'T USE THIS TO PIRATE TAPES! THOSE COPYRIGHTS THEY PRINT ARE LEGAL IN COURT EVEN WITHOUT EVER BEING REGISTERED. TO COPY GAURD A TAPE (IN AB)

ENTER>PRINT ";RUN ";%(20120)=199;:PRINT %(16384),1937;
%(20120)=3779 [REC]

    MOST PURCHASED SOFTWARE IS LISTABLE, HOWEVER. IF WE COULD ONLY UNDERSTAND THE LISTINGS!! TRY THIS: (IN EB ONLY)

10CLEAR ;XY=0;FOR A=0TO 100;LINE RND (160)-81,RND (88)-45,3;@(A)
=XY;NEXT A;XY=0;FOR A=0TO 100;LINE @(A),B.(@(A),1),3;NEXT A;RUN

    CAN YOU DO THIS IN AB? SEE NAUTILUS [BY L+M], OR CHANGE THE "BYTE (@(A),UPPER)" TO "@(A)c256-(RM#0)b(@(A)<0)", OR SEE PG. 59 VOL. 5 ARCADIAN. HOW? WITH THAT? NEXT MONTH! KEEP BUGGIN'!!