FILE SEARCH II
THE ARTICLE NEVER WRITTEN
BY MICHAEL WHITE

WHEN I DID THE ORIGINAL TUTORIAL ON FILE SEARCH I INTENDED TO DO A FOLLOW-UP, BUT HAD IT SHOT OUT FROM UNDER ME BY DON GLADDEN WHO EDITED AND CHANGED IT. ALL THIS WILL BECOME APPARENT AS YOU READ ON. ALSO, IN THE "REMAKE" THAT ADAM TRIONFO POSTED, ONE TIP ABOUT TAPING WAS OMMITTED, (BY ME, SORRY ABOUT THAT).

RULE FOUR! YOU CAN NEVER GET A DECENT QUALITY PLAYBACK FROM A POOR RECORDING, NO MATTER HOW HARD YOU TRY! CHECK YOUR RECORDER BEFORE TAPING! A SMALL MIRROR WILL LET YOU SEE THE TAPE HEADS (AND ETC.) FOR DIRT (USUALLY A BROWN RESIDUE FROM PAST TAPES). THIS YOU CAN CLEAN WITH A "Q-TIP" AND DENATURED ALCHOHOL OR A PROFESSIONAL TAPE HEAD CLEANER (RADIO SHACK SELLS THESE). DON'T FORGET TO INSPECT EVERYTHING THAT CONTACTS THE TAPE RIBBON, INCLUDING THE ERASE HEAD AND CAPSTAN. YOU CAN CHECK FOR RESIDUAL MAGNETISM WITH A PIN (THAT ISN'T MAGNETIC ITSELF) BY GENTLY TOUCHING THE SIDE OF IT TO THE RECORD HEAD FEELING FOR A PULL. A DEMAGNETIZER IS CALLED FOR IF YOU DETECT ANY PULL AT ALL. BE SURE YOU UNDERSTAND HOW TO USE IT, AS SOME OF THESE DEVICES CAN ONLY MAKE MATTERS WORSE WHEN MISHANDLED! FINALLY, WHEN YOU DO MAKE THE RECORDING, BE SURE TO :LIST EVERYTHING YOU TAPED BEFORE DELEATING ANYTHING FROM MEMORY. ALSO, RELOAD IT FROM THE TAPE AGAIN, THROUGH FILE SEARCH IF YOU'RE USING IT, WHEN THE TAPE IS FINISHED. IF YOU CAN'T, DON'T EXPECT ANYONE ELSE, (OR EVEN YOURSELF), TO DO SO LATER! ALL THESE TAPING RULES APPLY FOR ALL RECORDINGS MADE ON THE ARCADE, REGARDLESS OF FILE SEARCH SYSTEMS USED, EVEN IF NONE WERE!

AS TO THE FILE SEARCH SYSTEMS, A WORD OF WARNING IS IN ORDER: DON'T USE THE FILE SEARCH SYSTEM FOUND ON ASTRO-BUGS CLUB TAPES! THIS METHOD HASN'T ANY "STEP OVER" AND BY-PASSES EACH TAPED SEGMENT WITH A :LIST COMMAND! THAT MEANS ANY "GLITCH" WOULD CAUSE THE SYSTEM TO FAIL!!! THEY GOT IT TO WORK BY EMPLOYING A 32K BLUE RAM AND DUMPING AN ENTIRE SIDE OF THE TAPE AT ONCE!! MEANING THAT THE TAPE NEVER STOPPED DURING THE RECORDING, HENSEFORTH NO "GLITCHES"! BUT I'M BETTING THAT YOU DON'T OWN A 32K BLUE RAM (OR SOMETHING BIGGER) AND CAN'T DO IT THIS WAY! THE FILE SEARCH SYSTEMS THAT I'VE DISCRIBED WORK WITHOUT A HUGE EXTRA MEMORY CASHE!!

THE MAJOR DIFFERENCE BETWEEN THE TWO FILE SEARCH SYSTEMS THAT I'VE DISCRIBED, NAMELY THE ONE IN THE ARCADIAN (VOL.5 PG.125), AND THE ONE SHOWN BY ITSELF ON "WWW.BALLYALLEY.COM" (ADAM TRIONFO'S WEB SITE) IS THE LENGTH OF THE "BURST" THAT PRECEDES THE "SLAVE" PROGRAMS ON THE TAPE. ARCADIAN VOL.5 PG.59 SHOWS A VERY USEFUL LIST OF ALL THE ASTROBASIC (AB) VARIABLES WITH ALL THIER ADDRESSES. IN THE FILE SEARCHER ON "BALLYALLEY" IT USES %(20016) WHICH IS THE ADDRESS TO THE VARIABLE "H", NOT "Y"! THIS "BURST" TAPES 18 VARIABLES, "H" THROUGH "Y", BUT NOT "Z"! AT THE END OF THE "BURST" A CHECKSUM BYTE GETS PUT ON THE TAPE BY AB (OR EB) AND READ DURING A :LIST (OR :INPUT OR :RUN). THIS "GARBAGE" BYTE GETS PUT IN "Z" WITH THE LOADING OF THE "BURST" WHEN WE USE THE COMMAND :INPUT %(20016). NOTE: SEE LINE 60 OF THE PROGRAM IN "BALLYALLEY" WHICH PUTS IT HARMLESSLY OUT OF THE WAY. THIS BYTE IS THE ONE THAT CHECKS FOR THE VALIDITY OF A RECORDING! IF IT'S NOT CORRECT WHEN COMPARED WITH A SUM TOTAL OF EVERYTHING ELSE ON THIS "BURST" (WHETHER THE "BURST" IS ONLY 2 BYTES LONG, OR SEVERAL THOUSAND), A QUESTION MARK "?" APPEARS ON THE SCREEN, INDICATING A BAD LOAD, OR A BAD RECORDING, (BUT WE KILLED THAT TOPIC ALREADY, I THOUGHT).

THE ARCADIAN VERSION (VOL.5 PG.125) HAS ONLY ONE VARIABLE, (NOT 18), GOING TO THE TAPE FOR THE "BURST". ALSO, THE VARIABLE NAME "Y" WAS USED INSTEAD OF %(20050), (SEE ARCADIAN VOL.5 PG.59)! THESE WERE DON GLADDEN'S CHANGES. HE FOUND THAT THE EXPRESSION :PRINT H,18 DOES THE SAME AS :PRINT %(20016),18 AND USES LESS BYTES, BUT COULD NOT UNDERSTAND WHY MORE THAN ONE VARIABLE NEEDED TO BE TAPED, SO IT BECAME :PRINT Y,1 AND FORCED ME TO CHANGE FILE SEARCH SYSTEMS FOR QUADRA, AND EB (BRB) AS WELL (SEE NIAGARA BUG BULLETIN VOL.2 PG.32, OR ARCADIAN VOL.7 PG.17). THE :PRINT H,18 SYSTEM WORKS FOR BRB AS WELL AS AB, PLUS IT ALLOWS FOR SPECIALLY TAPED AB PROGRAMS TO BE FILE SEARCHED, WHERE AS THE :PRINT Y,1 SYSTEM DOES NOT! FOR INSTANCE, SAY YOU HAVE A PURCHASED TAPE THAT HAD A "TITLE PROGRAM". YOU CAN NOW MAKE A "BACK-UP" COPY (RECOMMENDED FOR ALL PURCHASED TAPES) ON YOUR FILE SEARCHED "MASTER" TAPE. JUST CHANGE LINE 70 OF " FILE SEARCHER " (BALLYALLEY VERSION) TO READ:

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>70 CX=-36;PRINT "SEARCHING FØR";GOSUB 80;FOR D=WTO X;NEXT D;GOTO 60
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THIS CHANGES THE "STEP OVER" LOOP SO IT CAN VARY IN LENGTH! NOW YOU CAN "STEP OVER" **2 PROGRAMS AT ONCE**! SIMPLY TAPE THE "BURST" WITH "W" SET TO -11000 AND "X" SET TO 11000!! THIS WILL TIE THE COMPUTER UP FOR ABOUT 50 SECONDS AND ALLOW A PROGRAM (WITH A "TITLE PROGRAM") TO PASS! OTHER ODD PROGRAMS THAT LOAD THE LINE INPUT BUFFER SEVERAL TIMES, OR ANY OTHER MULTIPLE LOADS CAN BE "STEPPED OVER" BY TIMING THE LENGTH OF THE ENTIRE DUMP (WITH SOMETHING LIKE A STOP WATCH) NOTING THE ELAPSED TIME, THEN TIMING DELAY LOOPS UNTIL VALUES FOR "W" AND "X" ARE FOUND THAT LAST 3 TO 5 SECONDS LONGER THAN THE DUMP TOOK.
NOTE: IN BRB THE SAME THING HOLDS TRUE, EXCEPT THIS BASIC RUNS FASTER AND THE PROGRAMS CAN GET QUITE A BIT LARGER, SO THE DELAY LOOP IN LINE 70 MUST BE "DOUBLED UP" TO MAKE THESE HUGE STEPS!
IN AB HOWEVER, THE REMAINDER OF THE "SLAVE" PROGRAMS (THE "SIMPLE" SINGLE LOAD ONES) HAVE TO HAVE THE "BURST" TAPED WITH "W=0" AND "X=11000" IF YOU INCLUDE THIS CHANGE IN LINE 70 OF YOUR FILE SEARCHER, AS THE VARIABLES ARE USED TO SET UP THE "STEP OVER" LOOP **EVERY SINGLE TIME**!!!
ANOTHER POSSIBLE CHANGE IS WITH THE AB (OR EVEN EB) PROGRAM THAT WAS TAPED USING THE LINE INPUT BUFFER TO SET &(9) AND ITS "COUSINS" (SEE HOW WE TAPED "GOLF" IN NIAGARA BUG BULLETIN VOL.2 PG.32, OR ARCADIAN VOL.7 PG.17). YOU CAN INCLUDE THE ADDITIONAL INSTRUCTIONS TO LINE 60 OF YOUR FILE SEARCHER LIKE SO:

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>60 :INPUT H;CLEAR ;CY=4;IF Y=G&(0)=H;&(1)=I;&(2)=J;&(3)=K;&(9)=L;&(10)=M;
CX=-18;PRINT "LØADING";GOSUB 80;:INPUT ;RUN
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OF COURSE, DOING THIS FORCES ONE TO PRE-LOAD VARIABLES "H" THROUGH "M" OF THE "BURST" WITH THE DATA REQUIRED, EVERY TIME (SAME AS "W" AND "X", ABOVE)!! TO TAPE A "SLAVE" PROGRAM WITH A "BURST" THAT USES UP TO ALL 18 VARIABLES, YOU'LL HAVE TO PUT THE "BURST" VALUES IN THE VARIABLES FIRST! THEN KEY IN:

:PRINT H,18 (START THE TAPE RECORDING, LEAVE ABOUT 5 OR 10 SECONDS AND HIT GO)

THE "BURST" WILL TAPE IN A FEW SECONDS. VERIFY WITH THE :LIST COMMAND, THEN CUE THE TAPE BEHIND THE "BURST" AS I DISCRIBED IN THE FILE SEARCH ARTICLE IN "BALLYALLEY". RESET YOUR VARIABLES TO THE VALUES THE PROGRAM REQUIRES, AND EXECUTE YOUR TAPING COMMAND. THIS WILL LEAVE A "GLITCH" BETWEEN THE "BURST" AND THE PROGRAM THAT REQUIRES A 2 SECOND "STEP OVER" TO AVOID. TO DO THAT, AND ADD AN AUDIBLE ALARM THAT SOUNDS WHEN THE CORRECT PROGRAM IS FOUND, CHANGE LINE 60 AGAIN TO:

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>60 :INPUT H;CLEAR ;CY=4;IF Y=G&(0)=H;&(1)=I;&(2)=J;&(3)=K;&(9)=L;&(10)=M;
CX=-18;PRINT "LØADING";GOSUB 80;NT=-1;GOTO 500
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AND THEN ADD:

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>500 &(16)=N;&(17)=O;&(18)=P;&(19)=Q;&(20)=R;&(21)=S;&(22)=T;&(23)=U;
     FOR D=1TO 999;NEXT D;NT=0;↓
>510 :INPUT ;RUN
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NOTE THE ADD OF LINE 510! THIS IS SO THAT ANY OF YOUR "SLAVE" PROGRAMS COULD USE THE LINE INPUT BUFFER. SOME PROGRAMS USE THE LINE INPUT BUFFER FOR MULTIPLE LOADS (MENTIONED ABOVE), FOR LOOPS THAT DO SOUND, GRAPHICS, TEXT, (OR ANYTHING ELSE), OR EVEN START IN THE MIDDLE OF THE PROGRAM WITH A "GOTO X", INSTEAD OF AT THE TOP BY USING THE "RUN" COMMAND. HERE'S HOW THAT WORKS. THE "SLAVE" PROGRAM THAT WANTS STARTED IN THE MIDDLE IS TAPED THUS:

>PRINT ";GOTO X";:PRINT %(16384),1888 (OR GREATER)

THE "X" CAN BE ANY LINE NUMBER, OR A VARIABLE, SINCE THE VARIABLES GET TAPED WITH THE PROGRAM IN AB (AND BRB, BUT NOT BB OR VIPERSOFT). THAT MEANS THAT WHEN THE PROGRAM LOADS, THE "BURST" VALUES ARE REPLACED WITH THE VALUES

THAT TAPED WITH THE PROGRAM. NOTE: OUTPUT PORTS "&(X)" **ARE NOT** TAPED WITH **ANY** PROGRAM!!! HENSEFORTH, THE ENHANSEMENTS TO LINE 60 CAN SET THOSE PORTS FOR THE "SLAVE" PROGRAM BEFORE IT LOADS, AND THEY REMAIN THE SAME, EVEN AFTER IT STARTS RUNNING!! IN LINE 500 THOUGH, THE "↓" RESETS THE SOUND PORTS TO THIER "SILENT" DEFAULT VALUES.

USING THE ABOVE TAPING COMMAND CAUSES PART OF THE LINE INPUT BUFFER TO GO TO TAPE AS WELL, SINCE 1888 (OR GREATER, UP TO 2000) PUTS EXTRA BYTES ON THE TAPE WHEN WE RECORD. (:PRINT IN AB IS THE SAME AS :PRINT %(16384),1864 AND DOES **NOT** RECORD ANY PART OF THE LINE INPUT BUFFER.) THIS WOULD BE LIKE TRYING TO RECORD OUR "BURST" BY USING :PRINT H,16! THIS ONLY TAPES 16 VARIABLES FROM "H" THROUGH "W" AND IS NO GOOD FOR OUR PURPOSE. SO, IF WE USE :PRINT %(16384),1888 (OR GREATER) THE CONTENTS OF THE LINE INPUT BUFFER ARE REPLACED WHEN THE TAPE LOADS, BECAUSE **WHAT GETS SAVED, GETS LOADED!** WHAT WE LOAD THE LINE INPUT BUFFER WITH, IS:

    PRINT ";GOTO X

WHY? BECAUSE AB "UNPACKS" EVERY LINE OF BASIC TEXT INTO THE LINE INPUT BUFFER, THEN RUNS IT FROM THERE! WHEN LINE 510 GETS "UNPACKED", IT RESEMBLES THIS ADDRESS CHART. (NOTE: THE LINE INPUT BUFFER BEGINS AT %(20154) IN AB)

ADDRESSES	20154	20155	20156	20157	20158
DATA	:	INPUT	;	RUN	"GO"

WHEN THE "SLAVE" PROGRAM LOADS, THE DATA IN THESE ADDRESSES CHANGE (BECAUSE IT WAS TAPED THAT WAY) AND BECOMES:

ADDRESSES	20154	20155	20156	20157	20158
DATA	PRINT	"	;	GOTO	X

THE MACHINE KEEPS TRACK OF WHERE IT IS IN A BASIC PROGRAM WITH THE "DE" REGISTER (INSIDE THE Z80), NOT BASIC VARIABLE "D" OR "E"! WHEN LINE 510 (ABOVE) IS EXECUTED, THE MACHINE SEES THE :INPUT AND STOPS AT %(20156) WAITING FOR A TAPE TO LOAD (AS PER THE :INPUT COMMAND)! WHEN THE :INPUT INSTRUCTION FINISHES (MEANING THAT THE TAPE IS LOADED), THE ARCADE CONTINUES RUNNING BASIC **FROM THERE!!** (FROM THE ";" AT %(20156)!)! BUT IF THE LINE INPUT BUFFER WAS TAPED WITH THE PROGRAM, THE CONTENTS OF THIS PART OF THE MEMORY HAS CHANGED AND THE COMPUTER WON'T KNOW THE DIFFERENCE! IT "THINKS" IT SAW:

    :INPUT ;GOTO X

BECAUSE THAT **WAS THE CONTENTS OF THOSE BYTES WHEN** THE COMPUTER READ THOSE INSTRUCTIONS AND EXECUTED THEM!! OTHER "SLAVE" PROGRAMS FILED ON THIS SAME TAPE USING A SIMPLE :PRINT FOR A TAPING COMMAND, WOULD "AUTO RUN" AS EASILY AS THE EXAMPLE I JUST GAVE, BECAUSE LINE 510 WOULD EXECUTE AS IT IS WRITTEN! HOWEVER, THOSE "SLAVE" PROGRAMS WOULD ALWAYS START AT THE TOP OF THE LISTING. NOTE: THIS PRINCIPLE ALSO WORKS IN BRB (WITH SOME MODIFICATION) AND IS USED TO START BASICARTS AS WELL! IF YOU DON'T UNDERSTAND THIS, YOU WON'T BE "HOMEBREWING" BASICARTS! (AB OR BRB)!!

ANOTHER THING YOU CAN DO TO "SPICE UP" YOUR FILINGS IS TO ENTERTAIN WHILE THE TAPE IS MOVING, BY REPLACING PART OF THE "STEP OVER" LOOP IN LINE 70 WITH CARTOONS, OR ANY OTHER ENHANSEMENT THAT COMES TO MIND! THE FILE SEARCHER THAT APPEARS IN "BALLYALLEY", WITH 9 "SLAVE" PROGRAMS LISTED IN THE MENU, AND ALL THE ENHANSEMENTS I'VE DISCRIBED SO FAR, USES ABOUT 700 BYTES, WHICH LEAVES 1100 (IN AB) TO DO FANCY "TRICKS" WITH! A SERIES OF SUBROUTINES BEGINNING AT, SAY, LINE 1000 COULD DO LINE ART, CARTOONS, MUSIC, SCROLLING MESSAGES, OR ANYTHING YOU WISH! HOW? CHANGE LINE 70 TO:

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>70 GOSUB V;CLEAR ;CY=-4;CX=-36;PRINT "SEARCHING FØR";GOSUB 80;FOR D=WTO X;
   NEXT D;GOTO 60
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IF YOU NEED VARIABLES TO DO SOME OUTRAGEOUS IDEA, DON'T USE "G", "W", OR
"X"! EVERYTHING ELSE GETS REPLACED WITH THE NEXT "BURST" OR IS UNUSED AT THIS
TIME (SEE ARCADIAN VOL.7 PG.72,73,74 FOR INFO ON "TIME SHARING"). ALSO, YOU'LL
HAVE TO TIME YOUR ENHANSEMENT, THEN LOAD THE "BURST" WITH VALUES FOR "W" AND
"X" THAT FILL IN THE REMAINING TIME. NOTE: **BE SURE** YOUR ENHANSEMENT RUNS FOR
ABOUT THE SAME TIME EVERY TIME! ONE "TWIST" IS POSSIBLE THOUGH. IF YOU WISH TO
HAVE AN ENHANSEMENT RUN LONGER THAN 25 SECONDS (A SINGLE "STEP OVER") YOU CAN,
BUT A FEW "RULES" NEED TO BE OBSERVED! FIRST OFF, CHANGE LINE 70 (AGAIN) TO:

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>70 GOSUB Gx1000-V;CLEAR ;CY=-4;CX=-36;PRINT "SEARCHING FØR";GOSUB 80;
      FOR D=WTO X;NEXT D;GOTO 60
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NOW THE SUBROUTINE NUMBER WILL CHANGE WITH SELECTION, SO THE LONG RUNNING
ENHANSEMENT WON'T COME UP ON, SAY, PROGRAM #2 WHICH IS 25 SECONDS AWAY, BUT
DOES, IF #3 WAS SELECTED WHICH IS 50 SECONDS AWAY, ASSUMING THIS "BURST"
PRECEDES "SLAVE" PROGRAM #1 ON THE TAPE! ONE OTHER THING TO WATCH IS THE VALUES
FOR "W" AND "X". THE ABOVE "BURST" SHOULD BE TAPED WITH THE SHORTER ENHANSEMENT
VALUES, AND THE LONGER ENHANSEMENT NEEDS TO CHANGE THESE VARIABLES BEFORE
"RETURNING" TO LINE 70. TO EXPLAIN: SAY, THE SHORTER ENHANSEMENT RUNS FOR 20
SECONDS AND THE LONGER ONE FOR 40. THE FIRST DELAY LOOP NEEDS TO RUN 5 SECONDS,
THE SECOND ONE FOR 10! THEREFORE, THE VALUES FOR "W" AND "X" NEED TO CHANGE IN
THE LONGER RUNNING SUBROUTINE!
     ALSO, IF YOU WISH TO GET 10 "SLAVE" PROGRAMS ON YOUR TAPE, SIMPLY CHANGE
THE LOOP IN LINE 20 TO START AT "0" INSTEAD OF "1", AND CHANGE THE LIMIT IN
LINE 40 LIKEWISE TO (G<0) INSTEAD OF (G<1). HOWEVER, THE BEST FILE SEARCHED
TAPES ARE C10'S! THAT'S 5 MINUTES PER SIDE! ANYTHING LONGER AND YOU'LL BE GOING
OUT FOR PIZZA, AS IT WAS WITH OLD BB AT 300 BAUD! IF YOU INSIST ON USING, SAY A
C60, I DON'T RECOMMEND FILE SEARCHING. (SEE ARCADIAN VOL.6 PG.83 ON HOW TO USE
A TAPE COUNTER IF YOUR RECORDER HAS ONE).
     USING ALL THE ENHANSEMENTS DISCUSSED SO FAR, THE BRB FILE SEARCHER IS:

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>DE.;CLEAR
>10 CLEAR ;DATA BC,7,165,91,0;DATA NT,0,-25,8,6;DATA A,%(27808)÷10-8,1000,28123
      ;PRINT "STØP TAPE
>20 NT=3;FOR G=0TO 50;MU=RND (26)+64;NEXT G;CLEAR ;FOR G=0TO A;PRINT #3,G,;
      GOSUB 80;NEXT G
>30 DATA %(27948),8224,14907,15219,3434;DATA %(C),11537,-13971;CC=5;
      PRINT "   YØUR CHØICE?
>40 G=KP-48;IF (G<0)+(G>A)GOTO 40
>50 CLEAR ;DATA CX,-29,8,6;PRINT "START TAPE
>60 :INPUT H;CLEAR ;IF Y=G&(0)=H;&(1)=I;&(2)=J;&(3)=K;&(9)=L;&(10)=M;
      GOTO B,NT,0,-17,12,6
>70 GOSUB GxB-V;CLEAR ;DATA NT,0,-35,12,5;PL.;&(16)=71;PRINT "SEARCHING FØR";
      GOSUB 80;FOR Z=WTO X;NEXT Z;FOR Z=WTO X;NEXT Z;GOTO 60
>80 IF G=1CX=-(# OF LETTERS AND SPACES x3);PRINT "(FIRST "SLAVE" PROGRAM TITLE)
>90(THROUGH 170 AS NEEDED) (G=2 ETC. SAME AS LINE 80)
>(LAST LINE NUMBER) RETURN
>1000 &(16)=N;&(17)=O;&(18)=P;&(19)=Q;&(20)=R;&(21)=S;&(22)=T;&(23)=U;
      PRINT "LØADING";GOSUB 80;FOR Z=1TO B;NEXT Z;NT=0;PL.;&(16)=71;CALLC
>(2000 AND UP IN INCREMENTS OF 1000 AS DESIRED) (OPTIONAL ENHANSEMENT
      SUBROUTINES);RETURN
>PRINT ";RUN ";:PRINT %(24576),1688 (START TAPE RECORDING, AND HIT "GO")
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USE :LIST TO VERIFY

YOU DON'T NEED ALL THESE ENHANSEMENTS, HOWEVER. THE SIMPLE FILE SEARCHER
(THAT'S LISTED IN NIAGARA BUG BULLETIN VOL.2 PG.32, OR ARCADIAN VOL.7 PG.17),
COULD BE USED, OR ANY COMBINATION BETWEEN THAT ONE AND THIS ONE! AFTER ALL, THE
FINISHED PRODUCT WILL BE YOURS! YOU MAY WISH TO USE SOME OF THOSE VARIABLES
THAT I ASSIGNED TO THE SOUND PORTS FOR SOME IDEA OF YOUR OWN, OR EVEN MAKE ONE
"BURST" CAUSE A "STEP OVER" TO ANY "SLAVE" PROGRAM ON THE MENU, OR SOME TOTALLY

OUTRAGEOUS CONCEPT THAT WOULD HAVE TO BE SEEN TO BE BELIEVED! DON'T BE AFRAID
TO ENHANSE WHAT I'VE DONE! **BE UNIQUE!** BE CREATIVE!! **BE YOURSELF!!!**
        IN BRB YOU'VE GOT 3100 BYTES (AS OPPOSED TO 1800 IN AB) AND A 4 COLOR
SCREEN TO GET REALLY FANCY WITH! OTHERWISE THE SAME "RULES" APPLY TO BOTH! THE
ONLY REAL DIFFERENCES (BESIDES THE ONES ALREADY MENTIONED) ARE THE LOADING AND
RE-ENTERING ROUTINE FOR THE LINE INPUT BUFFER, AND THE USE OF "DATA" STATEMENTS
(WHICH IS A FEATURE OF BOTH EB'S EXCLUSIVELY, THAT DETERMINES THE BEST WAY TO
UTILIZE VARIABLES). IN THE BRB FILE SEARCHER LISTED ABOVE, THE VARIABLES "A",
"B", AND "C" ARE USED TO CONTROL THE "LINE INPUT BUFFER CALLBACK ROUTINE" AND
CANNOT BE USED INSIDE AN "ENHANSEMENT SUBROUTINE", AS WELL AS "G", "W", OR "X"!
HOWEVER, "D", "E", AND "F" ARE OPEN, AND CAN EVEN HOLD REPEATING VALUES BY
INCLUDING 3 MORE VALUES TO THE "DATA" STATEMENT IN LINE 10. "DATA" STATEMENTS
WORK IN REAL "%(X)" ADDRESSES, ONE WORD (TWO BYTES) AT A TIME. THE ADDRESS OF
WHATEVER THAT FOLLOWS THE KEYWORD "DATA" IS THE STARTING POINT. AFTER THAT, THE
REST LOADS IN SEQUENCE WITH EACH SUBSEQUENT VALUE LOADING IN 2 BYTES (ONE WORD)
HIGHER THAN THE LAST. IN THE CASE OF:

DATA @(0),A,B,C,D,E

        THE RESULTS WOULD BE:

@(0)=A;@(1)=B;@(2)=C;@(3)=D;@(4)=E

        THEREFORE:

DATA A,%(27808)÷10-8,1000,28123

        (IN LINE 10) DOES THE SAME AS:

A=%(27808)÷10-8;B=1000;C=28123

        SO, TO ADD "D", "E", AND "F", SIMPLY SAY:

>10 CLEAR ;DATA BC,7,165,91,0;DATA NT,0,-25,8,6;DATA A,%(27808)÷10-8,1000,28123
,(VALUE FOR "D"),(VALUE FOR "E"),(VALUE FOR "F");PRINT "STOP TAPE

        THIS IS BECAUSE THE VARIABLES, AS WELL AS STRING ADDRESSES "@(X)" USE TWO
BYTES (ONE WORD) EACH! DO I NEED TO EXPLAIN THE "DATA" STATEMENTS IN LINE 30
NOW? ONLY TO SAY THAT %(27948) IS THE FIRST BYTE OF THE LINE INPUT BUFFER (IN
BRB), RESULTING IN THE LINE INPUT BUFFER BEING "POKED" INTO WITH DATA THAT
RESEMBLES THE FOLLOWING ADDRESS CHART:

ADDRESSES	27948	27949	27950	27951	27952	27953	27954	27955
DATA	(SPACE)	(SPACE)	;	:	INPUT	;	RUN	(GO)

        THE OTHER "DATA" STATEMENT POKES A VERY SHORT MACHINE CODE ROUTINE INTO
%(28123) THROUGH %(28126) WHICH IS AN "UNUSED" ADDRESS AREA. THIS IS TO GET THE
COMPUTER BACK INTO THE LINE INPUT BUFFER OF BRB. THE MACHINE CODE PART IS:

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LIBCBR.LD.DE,27949;FUDGES A NEW DE VALUE
        .RET.         ;RETURNS TO BASIC (AT DE LOCATION)
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        DO YOU REMEMBER THAT I SAID THAT THE Z80'S OWN "DE" REGISTER KEEPS TRACK
OF WHERE IN THE BASIC PROGRAM THE COMPUTER IS CURRENTLY AT? THE ABOVE ROUTINE
SIMPLY SAYS "LOAD DE WITH 27949" AND "RETURN" TO BASIC **AT THAT POINT**! (NOTE:
RE-READ NIAGARA BUG BULLETIN VOL.2 PG.37+38, OR ARCADIAN VOL.7 PG.19,20, AND 21
WHERE I EXPLAINED ALL THIS BEFORE). THIS IS VERY IMPORTANT TO A PERSON TRYING
TO "HOMEBREW" A BASICART (OF SORTS) IN BRB, OR USE THE LINE INPUT BUFFER IN A
FILED "SLAVE" PROGRAM, AS HE SEES TWO SPACES WERE INSERTED IN THE FIRST TWO
ADDRESSES! IF THESE ADDRESSES WERE TAPED WITH A "SLAVE" PROGRAM (AS IN THE AB
"GOTO X" TAPING ROUTINE DISCUSSED EARLIER), ALLOWANCE FOR **THREE** EXTRA BYTES

MUST BE MADE!! IN THIS CASE THE "DE" REGISTER STOPS ON THE <u>SIXTH</u> BYTE OF THE LINE INPUT BUFFER "%(27953)" AND RESUMES RUNNING BASIC FROM THERE WHEN THE LOADING FINISHES! THE ADDRESS CHART SHOWING THIS APPEARS LIKE SO:

ADDRESSES	27948	27949	27950	27951	27952	27953	27954	27955
BEFORE DATA	(SPACE)	(SPACE)	;	:	INPUT	;	RUN	(GO)
AFTER DATA	PRINT	"	(SPACE)	(SPACE)	(SPACE)	;	GOTO	X

    THIS IS SHOWING IT **BEFORE** AND **AFTER** THE TAPE RUNS! YOU'LL HAVE TO ADD 3 SPACES TO THE QUOTE (IN YOUR "SLAVE" PROGRAM'S TAPING COMMAND). I STILL DON'T KNOW WHY BRB INSISTS ON USING TWO SPACES TO JUMP IN ON, BUT I'VE TRIED, AND IT WON'T WORK ANY OTHER WAY! SO, YOU'LL <u>HAVE</u> TO MOVE THE LINE INPUT BUFFER'S CONTENTS BY <u>3 BYTES</u>! IF YOU GET CROWDED, PERHAPS &(9) AND ITS "COUSINS" CAN BE LOADED ELSEWHERE. SAY, LINE 60 OF " FILE SEARCHER " MAYBE? JUST INCLUDE THE VALUES IN THE "BURST".
    ONE LAST THING, IN LINE 10 OF THE BRB FILE SEARCHER PRINTED ABOVE, THE EXPRESSION "%(27808)÷10-8" IS USED TO SET VARIABLE "A". THIS DOES <u>EXACTLY</u> THE SAME THING AS "%(20111)÷10-8" IN AB! YEP! THAT'S RIGHT! "%(27808)" IS THE +10 ADVANCE REGISTER IN BRB, MEANING THAT THE "(LAST LINE NUMBER)" NEEDS TO BE THE LAST LINE WORKED ON (EDITED) BEFORE THE TAPING COMMAND GETS EXECUTED, EVEN IF IT'S NOT THE "LAST LINE" OF YOUR BASIC PROGRAM. NOTE: THE +10 ADVANCE REGISTER IS AT "%(-32608)" IN VIPERSOFT BASIC, BUT **DOES <u>NOT</u>** GET SAVED WHEN A PROGRAM GETS TAPED, (EITHER 300 OR 2000 BAUD)!
    WELL, DO YOU FOLLOW ME SO FAR? IF THERE'S A QUESTION ABOUT ANYTHING THAT I'VE DISCUSSED, PLEASE CALL OR WRITE. MY ADDRESS HAS CHANGED SINCE 1983 (JUST THE NUMBER, NOT THE HOUSE) TO:

MICHAEL D. WHITE
4585 COUNTY LINE #2
WAKEMAN, OHIO 44889

    ALSO, MY ANSWERING MACHINE IS AT (440)839-2383, OR YOU CAN LEAVE A MESSAGE WITH ADAM TRIONFO AND HE CAN "RELAY" IT. I WORK EVENINGS NOW, AND (SOMETIMES) INCREDIBLY LONG HOURS, AND CAN BE <u>VERY</u> **HARD** TO CATCH. HOWEVER, I <u>WILL</u> ANSWER ALL INQUIRIES IF I'M ABLE.
    NEXT TIME, HOPEFULLY, I'LL HAVE A PROGRAM THAT PUTS THE "BURST" ON YOUR FILED AB "SLAVE" PROGRAMS WITHOUT ALL THE TAPE RECORDER HANDLING, AND A WHOLE LOT MORE!! (HINT: IT USES ADDITIONAL MEMORY) TILL THEN, HAPPY FILING!