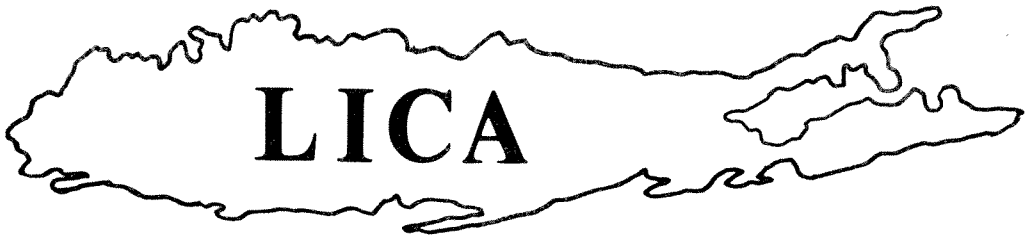
LONG ISLAND COMPUTER ASSOCIATION



Volume 4 Number 12 THE STACK December, 1980

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MONTHLY MEETING

Our general membership meetings, where the cross-pollination of ideas and the freest interchange of data occurs are scheduled for 8:00 p.m. on the third Friday of each month in Room 508, Building 500, the New York Institute of Technology, Old Westbury Campus. This month that's December 19 - so come on down! The scheduled featured speaker will be a representative of Dynamic Microprocessor Associates of Commack, NY who will discuss his firm's "CBS System" (the term refers to a concept called "Configurable Business Systems".

SPECIAL INTEREST GROUPS

S-100 Users' Group - These folks gather at the same time and location as the general meeting, except their meeting is held one week earlier on the second Friday evening. During odd-numbered months there is a general discussion, rather than a featured speaker. Each attendee has the opportunity to learn from others in the areas of special applications, hardware, software, or what have you. On December 12th, the speaker will be Paul Globman, of Global Parameters Company, who will discuss his company's GLOBAL Data Base System.

TRS-80 USERS' GROUP

Please note that this sub-group meets twice monthly, at 8:00 p.m. on both the second and third Fridays of the month at NYIT. The proceedings are videotaped in VHS format and are available for viewing, copying, or exchanging with other user groups. Tapes available include Beginning Machine Language Programming, and a discussion on the significant differences between serial and random access files. Recent speakers have been from Alpha Products (D/A converters, computer-generated music, temperature and voltage sensors, alarm system applications), RADIO SHACK (demonstration of Model III), and from among the 75-member sub-group associates themselves. Tom Vanderstowe provided slides of his communications satellite downlink system which made him a minor celebrity here on Long Island when he successfully received the Ali-Holmes bout through

the aid of a TRS-80 system. The program "Orchestra/80", which produces good four-part harmony was demonstrated.

Evan Grossman and Roy Niederhoffer are both 14 years old. They write their own software for sale under the name SOFTWARE INNOVATIONS. Their version of Space Invaders has already netted them over $2000. See their ads on 80/MICROCOMPUTING. These young entrepreneurs even accept Master Card.
Dave Race has written software for tracking of communications satellites. Sonny Weissman uses his system to handle accounts receivable in his bedding business. Al Rosen has used his four-disk TRS-80 system in connection with his alarm business in meaningful ways for more than two years.

Ron Tomchin has an Omicron system which allows him to read and to write single density CP/M format disk files in conjunction with his Model I configuration. He wrote two programs which accept up to six figures and labels and automatically scale both a bar graph and a line graph. These were sold to Creative Computing and were converted from disk to cassette-orientation and combined into a single program which is now one of six called Bar Graph in a set called "Graphing Package". Ron receives royalty commissions quarterly. He also uses his computer to produce membership rosters, meeting notices, and for the production of mailing labels for Boy and Girl Scout Troups, and his pistol club (for which he also computes match statistics). He reports further that he is using NEWDOS/80 from Apparat, which is upward-compatible from TRSDOS and his comment is that this operating system is "close to perfect".

Stan Misel wrote an enhancement to the popular utiliy program, Super-Zap which automatically chains through operating systems and dynamically implements desired changes. Fred Kempler has developed various business software and offers these for sale. Got the picture? These are active, creative, and ambitious hobbyists.

Many members of the LICA TRS-80 Users' Group are radio amateurs. Some use their computer systems in conjunction with RTTY and Morse experiments. Much interest has been expressed in SSTV contacts, and developments in this area are expected in the near future. Some program transfer, at 300 baud, has been done over 2 meter nets.

The three most active sub-groups can be contacted through their chairmen:

S-100 Users' Group ---	Auguste Schwab, Jr.	(516) 374-4168
TRS-80 Users' Group ---	Bob Zito	(516) 822-4031
6502 Users' Group ---	Steve Perry	(516) 744-6462

1981 NOMINATIONS OPEN
A tentative slate has been proposed by those attending the November meeting for both Executive Board members and incoming Association officers. While still subject to revision and addition, the lineup is as follows:

POSITION	NOMINEE	EXECUTIVE BOARD MEMBERS
President	Mark Zeiger	Bob Weidemann *
Vice-President	Dave Minott	Steve Perry *
Treasurer	Aileen Harrison	Augie Schwab *
Secretary	Harvey Fishman	Bob Zito *
		Lester Lutzker
		Hans Napfel
		Ed Zuilkowski

NOTE: The immediate past President and all user group chairpersons are automatically Executive Board members. These meetings are attended as well by your newsletter editor, who has been prevailed upon to continue in his present capacity.

INTERFACING & DESIGN COURSE PLANNED

Lester Lutzker has announced that he will assist Hans Napfel in presenting a course in microprocessor interfacing and design which should rival that given by the famed "Blacksburg Group" in Virginia. Tentatively scheduled for January and with its location as yet undecided, plans call for about 40 hours of hands-on experience in breadboarding using sophisticated training devices. The fee charged will be nominal, and registration will be on a first-come, first-served basis. Both the 8080 and the Z-80 chips will be featured. This should prove to be invaluable for the pure "software types" among us. Registration will not be restricted to LICA membership, but our associates will be given first consideration if demand for attendance proves overwhelming.

Contact: Hans Napfel (516) 421-3041
Lester Lutzker (516) 621-7280

CLASSIFIED NOTICES

For Sale - MEMOREX #3060 SS "Markette" 8" single-sided diskettes: $25/box
Available in large or small quantities. Jim Lillard (212) 479-7783

SHUGART disk drive alignment and repair by Computor Corrector. Contact Steve Metal. (516) 499-1135

Services - Accounting, record-keeping, & tax services provided weekly, monthly, or quarterly -- basis to suit. Sales tax, employer wage forms, bank records, cash receipts and disbursements journals, general ledgers, etc. Small business and personal accounts invited. Aileen Harrison (516) 938-6769

Job Opportunities - Management textbooks frequently refer to the value of sales experience in business. If you're tired of inadequate compensation, too many layoffs and too few real satisfactions, maybe you should consider pure sales. Are you immediately available, in perfect health, ready to be trained, able to manage your own time effectively, willing to travel moderately? Then call me Fridays through Sundays. Al Stone (516) 731-1649

COMMERCIAL ADVERTISING POLICY

In an effort to cover our costs of duplication and mailing, and to provide a more extensive monthly edition of The STACK, commercial display ads are accepted in 1/4, 1/2 and full-page sizes. Minimum participation is for three months, and the three month rates are $45, $65, and $100 respectively. Copy need not be the same each month. Camera-ready material must be accompanied by checks payable to LICA.

NEW BREED OF BBS ENCOUNTERED

Ed Zuilkowski has brought to our attention that there is now a second group calling itself "The CBBS of Long Island". Produced by a Richard Taylor, it represents an operation called PROGRAMS UNLIMITED, and uses the familiar TRS-80 bulletin board format. Their number is (516) 334-3134. Ed further reports the existence of something called "Connection 80", the brainchild of a firm called BT ENTERPRISES. Their "Sysop" is Tom Vande-Stouwe. Auto-answer at (516) 588-5836. The potential of such systems in "magazine format", to disseminate

both private communications and commercial notices is quite impressive.

COMPUTER CLUB TAKES NEW DIRECTION

We are in receipt of three issues of a slick publication called THE BOSTON COMPUTER UPDATE, the brainchild of one Jonathan Rotenberg. Apparently his view is that about two years ago "the microcomputer industry took its first majo leap toward broader public acceptance". That leap created "a new class of microcomputer user, the computer consumer, as opposed to the computer hobbyist". This magazine has evolved from a computer club into a commercial venture. The original club appears to be a collection of nine user and interest groups (There is even a slick clone publication called 80/BOSTON NEWS). In addition to the TRS-80 Group, there is Apple/Boston, OSI Users, Northstar Users, something called the Educational Resource Exchange, a PET User Group, a PASCAL User Group, a Source/Micronet Users' Group, and an Atari User Group. It is unclear whether these people have succeeded in becoming a non-profit, educational corporation, or whether they have achieved tax exempt, charitable status from the IRS. They have raised their dues to $15 per year, and solicit sustaining memberships ($50) and corporate memberships ($75). To us the question is whether the BCS is correct in the direction which it has taken, and whether we at LICA are failing to react to the winds of change. We'd like to hear from you. What's your opinion?

For the record, the Boston Computer Society is located at 17 Chestnut Street, Boston, MA 02108 (617) 227-9178

AIN'T NO RUBBER RAFT DEPT.

Update your mailing lists once more. Lifeboat Associates have again moved their offices and changed their phone number. Contact them at 1651 Third Ave., New York City, NY 10028 (212) 860-0300.

The LONG ISLAND COMPUTER ASSOCIATION is open to anyone, amateur or professional, with an interest in computers, computer applications, programming, or related subjects. Dues are $10 per year, which includes monthly issues of this publication, The STACK.

The STACK is also mailed to other computer clubs on an exchange basis, as well as to various technical publishers. Permission for reprinting or quoting items appearing in The STACK is granted provided that credit is given, and that a copy of the reprinted data or inforamation is sent to The STACK.

Members can vote in club elections, and place non-commercial classified ads without charge, and commercial ads at nominal cost.
Member articles and other data affecting The STACK must be received no later than the last calendar day of the month prior to publication. We reserve the right to edit or to reject any portions of submitted copy. As your editor is self-employed, and travels virtually all of the time, telephoning or using the CBBS (LIMBS) as a means of contact are not recommended.

TANDY IS DANDY

After December 31, 1980, it will be illegal for RADIO SHACK to manufacture the TRS-80 Model I, due to failure to comply with FCC Part 15 regulations on RF interference. The new Model III and the Color Computer (see below) seem to have been added to the product line at a propitious time.
We have had a functioning 64K IMSAI in our home for nearly five years. Our youngest son, TJ, who is nearly twelve was present at the cursing, sweating,

aggravating hardware construction and debugging sessions. He even soldered about half the connections on our ADM-3A. You'd expect that he would be more than a little satisfied with having access to a functioning double-disk, double-density CP/M system, backed with an extensive library of useful and challenging software. Alas, that has not been the case. Almost from the)tset, he has commented loudly and complained bitterly at the conspicuous lack of graphics capability, most notably color graphics. Well, that era is about to end. We've ordered a 16K, 6809-based "Color Computer" from the local Radio Shack store. Delivery is scheduled for early this month, so that TJ should have some programs completed before the next issue of The STACK. We'll try to prevail upon him to write up his impressions, both of the new "appliance computer", and of living in a two-computer household.

GUESS WHO'S IN THE MICROCOMPUTER GAME?
There appears to be an astounding side effect of the IEEE's standardization of the S-100 bus. IBM (also known as "the hungry 'I'") have announced the 5105, an 8080-based, S-100 bus computer with integral CRT, 16 or 32K RAM, 30 cps printer, a tape-cartridge drive and a BASIC interpreter. The rumored price for this Japanese-manufactured system will be about $4500!!!

MICROCOMPUTERS AND THE POPULAR PRESS
On November 16, there was a 28 page supplement to the Long Island newspaper, Newsday called "Sound & Sight" which contained an article entitled "Bored? Figure your bills and play some chess" by Jack Millrod of Dow Jones. In it were several assertions that beg for examination. It is said that "marketing analysts say a slow but steady drop in prices and a new expanding range of practical applications have put us on the threshold of the first true home computer market". Further, that Apple, Commodore, and Radio Shack "dominate the personal computer field and have continued to do so because more software is available for [their] computers than for any others". Finally, that the)me "computer market is growing at a rate of about 18 per cent [sic] a year, while the market for business computers is growing by about 40 per cent [sic] a year".

Well, we are the vanguard, the nucleus of those persons who will utilize desk-top computers fully in our home and business activities, probably blurring the distinction between the two. We are the developers and testers of the software that will become the basis of more fulfilling lifestyles in the eighties and nineties. We are the test market which will determine what the true "appliance computers" of the future will look like, and what that will do. We,and others like ourselves throughout the world, but primarily in the United States appear to be the focus of much journalistic scrutiny and general public curiosity. This is a fascinating position to occupy, isn't it?

REVIEW OF THE MICROMATIC SELECTRIC FOR THE TRS-80
This IBM Selectric-type printer first appeared in the hobby publications in the late Summer of 1980. I called the Micromatic Corp. in Indianapolis to ask some questions about the unit. As I was very pleased with the answers I received, I ordered the unit. One very misleading part of their ad: in addition to the $795 for the unit they add $25 for shipping and handling, yet this only includes the super heavy duty packing. The bus trip from Indianapolis cost me another $26.00!

The unit arrived exactly when it had been promised; something most of us don't believe any more. I rushed home from work that evening, shoveled my dinner

down as fast as I could and set to unpacking the unit. The IBM printer was shipped in one box, and the electronic interface in another.
The installation instructions, although a little sketchy were adequate to get me going. However, the thing did not work right! A spring was missing, causing the unit to be locked in the double line space mode. I made a spring and everything appeared o.k. at this point. Another very confusing point to a uninformed user like myself is that the upper/lower-case solenoids had been left in the upper-case position and that a signal from the computer would be needed to reset it. This caused the initial test of using the thing as a typewriter to fail, as all characters were coming out in upper-case. Once hooked to the TRS-80, the first C/R fixed it up.

After a few months of use I can report on the pros and cons of the machine. The unit is a converted IBM Model 1980 (nothing to do with the year 1980) terminal. The particular unit I received has the keytops engraved with banking terms for interface to a bank's computer, with the alphanumerics engraved on the faces. The numeric keys have no upper-case engraving, so you have to guess at it from the local keyboard. Some of the other keys have been restored to the standard Selectric functions, but you have to kknow where they are. Fortunately, I have had a Selectric typewriter for some time now. The unit will accept 15" wide paper and is friction-feed only. It will type a 12 3/8" line of 152 characters starting about 2" from the left side of the platen. The type ball is a BCD element, rather than a Correspondence type. The interface will convert data from the computer to Correspondence, but the local keyboard drives the BCD element only.

The real pros and cons of this manufacturer's unit over others is in the interface unit. Micromatic took the hardware approach, rather than needing to load a software driver, which is the point which sold me on the unit. The advantages of the interface include the ability to be fed from a standard Centronics cable or directly from the TRS-80's keyboard. This is a real plus for those who want a letter-quality printer and don't want to invest in the Expansion Interface from Radio Shack. The interface also allows you to select, by a front panel switch, whether you are using BCD-coded balls or Correspondence elements. The disadvantages are its inability to recognize control characters such as tabs or backspaces. While tabs can be circumvented, backspacing cannot. This is important if you are looking at the Superscript addition to Scripsit. The unit came with no service or technical information or schematics. These cost extra!

My primary requirement was that there be no software driver. I had to accept the disadvantages with that requirement. If you want a no-software unit, this is it. If you don't mind loading software with the resulting problems, look around some more.

Manny Marcel (516) 481-4480

C O N T R I B U T E D S O F T W A R E

MULTI-BAND CONTACT LOGGING FOR HAMS
For radio amateurs with TRS-80 disk systems, we offer a clever concoction utilizing the "REAL-TIME CLOCK" feature. There is a useful insertion of the popular "heap sort" technique here too. Reprint permission for non-commercial purposes will be given if request for such permission is made in writing. A CP/M version exists, and will be given to hobbyists who exchange similar useful software.

```
10 CLS
20 CLEAR8000
30 DEFINT A-E,G-N
40 REM Z$ IS THE CALL SIGN. Y$ IS THE TIME.
50 REM G IS THE SERIAL NUMBER. E IS THE NUMBER OF CONTACTS.
   DIM Z$(5,500),Y$(5,500),G(5,500),E(5)
70 PRINT"*** CONTEST LOGGING PROGRAM VERSION 1.2 <WA2FBQ> ***"
75 PRINT"***COPYRIGHT 1980 BY AL FLAPAN <WA2FBQ> ***"
80 PRINT
90 PRINT"THIS PROGRAM HAS THE CAPACITY TO LOG 500 CONTACTS"
100 PRINT"ON EACH OF 5 BANDS AND WILL INDICATE DUPLICATES ON THE"
110 PRINT"SAME BAND.YOU ENTER THE BAND ONLY ONCE AT THE START OF"
120 PRINT"WORKING IT AND THE TIME. THE PROGRAM WILL KEEP TRACK OF "
130 PRINT"THE CALL SIGN, THE TIME, THE BAND AND THE SERIAL NUMBER"
140 PRINT"OF EACH CONTACT."
150 PRINT
160 PRINT"TO CHANGE BANDS ENTER 'BAND' WHEN ASKED FOR CALL SIGN. "
170 REM SET CONTACTS ON EACH BAND TO INITIAL VALUE
180 FOR A=1TO 5:E(A)=1:NEXT A
190 REM SET SERIAL NUMBER OF CONTACT TO INITIAL VALUE
200 H=1
210 PRINT
220 GOSUB1950
230 CLS:PRINT"ENTER THE BAND YOU ARE WORKING AS FOLLOWS"
240 PRINT" 1 = 10 METERS"
250 PRINT" 2 = 15 METERS"
260 PRINT" 3 = 20 METERS"
270 PRINT" 4 = 40 METERS"
280 PRINT" 5 = 80 METERS"
290 PRINT" 8 = END LOGGING PROGRAM"
300 PRINT" 9 = SPECIAL FUNCTIONS"
310 INPUT D:IF D=9GOTO710
320 IF D=8GOTO1930
330 IFD>5GOTO230
340 IF D<1 GOTO 230
350 REM  D = THE BAND BEING WORKED
450 GOSUB1940
460 PRINT"ENTER CALL SIGN TO VERIFY...";:INPUT X$
470 IF X$="BAND" GOTO230
480 REM CHECK CONTACT FOR DUPE.
490 FOR A=1 TO E(D)
500 IF X$=Z$(D,A)GOTO 670
510 NEXT A
520 PRINTX$;:PRINT"  O K TO LOG (Y OR N)..";:INPUT W$
530 IF W$="N"GOTO460
540 IF W$<>"Y"GOTO520
550 REM O.K. ADD CONTACT TO PROPER ARRAY
560 Z$(D,E(D))=X$
570 REM GET CORRECT TIME.
590 F$=TIME$
600 Y$(D,E(D))=F$
610 G(D,E(D))=H:H=H+1
620 E(D)=E(D)+1
630 PRINT"LOGGED ";X$;" AT ";F$;" AS NUMBER ";H-1;" ON ";
640 A=D:ON A GOSUB 930,940,950,960,970
650 IFE(D)>500GOTO690
660 GOTO460
670 PRINT"** CONTACT IS A DUPE ON THIS BAND **"
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680 GOTO460
690 PRINT"LIMIT REACHED ON ";:ON A GOSUB 930,940,950,960,970
700 PRINT"*** GOING TO SPECIAL FUNCTIONS FOR YOUR ACTION  ***"
710 GOSUB 1940
720 PRINT"SPECIAL FUNCTIONS MODE..."
730 PRINT" 1 = DUMP CONTACTS TO DISC AND CONTINUE LOGGING"
740 PRINT" 2 = LPRINT CONTACTS AND CONTINUE LOGGING"
750 PRINT" 3 = READ DISC FILE INTO MEMORY LPRINT IT AND END"
760 PRINT" 4 = READ DISC FILE INTO MEMORY AND CONTINUE LOGGING"
770 PRINT"     THIS FUNCTION REESTABLISHES MEMORY FILE OF LOGGINGS"
780 PRINT" 5 = SCREEN PRINT CONTACTS AND CONTINUE LOGGING"
790 PRINT" 6 = READ DISC FILE INTO MEMORY SCREEN PRINT IT AND END"
800 PRINT" 7 = SCREEN PRINT ALL CONTACTS AND END LOGGING"
810 PRINT" 8 = LPRINT ALL CONTACTS AND END LOGGING"
820 PRINT" 9 = DUMP ALL CONTACTS TO DISC AND END LOGGING"
830 PRINT:PRINT"**FUNCTIONS 1,2,AND 5 CLEAR CONTACTS LOGGED SO FAR**"
840 PRINT"**ON THE BAND REACHING THE MAXIMUM NUMBER ALLOWED**"
850 INPUTA
860 IFA>9GOTO710
870 IFA<1GOTO710
880 ON A GOTO 1350,1150,1720,1550,890,1740,1330,1340,1730
890 A=1:I=499
900 IFE(A)<ITHENGOTO1130
905 GOSUB1980
910 CLS:PRINT"CONTACTS MADE ON ";
920 ON A GOSUB 930,940,950,960,970:GOTO990
930 PRINT"10 METERS":RETURN
940 PRINT"15 METERS":RETURN
950 PRINT"20 METERS":RETURN
960 PRINT"40 METERS":RETURN
970 PRINT"80 METERS":RETURN
980 REM C = # LINES PRINTED ON SCREEN
990 C=1
1010 FOR B=1 TO E(A)-1
1020 PRINT"CALL ";Z$(A,B);" AT ";Y$(A,B);" SERIAL # ";G(A,B)
1030 C=C+1:IFC=15 THEN1040ELSE1090
1040 GOSUB1950
1050 C=1:CLS
1060 PRINT"CONTACTS MADE ON ";
1070 ON A GOSUB 930,940,950,960,970
1080 REM RESET CALL IN ARRAY TO "0"
1090 Z$(A,B)="0":NEXT B
1100 GOSUB1950
1110 C=1:CLS:E(A)=1
1120 REM BUMP A TO NEXT BAND
1130 A=A+1:IFA>5THEN230
1140 GOTO900
1150 A=1:I=499
1160 IFE(A)<ITHENGOTO1310
1170 GOSUB1980
1180 CLS:PRINT"PRESS ANY KEY WHEN PRINTER IS READY.."
1190 GOSUB1960
1200 LPRINT"LIST OF CONTACTS MADE ON ";
1210 ON A GOTO1220,1230,1240,1250,1260
1220 LPRINT"10 METERS":GOTO1270
1230 LPRINT"15 METERS":GOTO1270
1240 LPRINT"20 METERS":GOTO1270
1250 LPRINT"40 METERS":GOTO1270
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1260 LPRINT"80 METERS"
1270 FOR B=1TO E(A)
1280 LPRINT"CALL ";Z$(A,B);" AT ";Y$(A,B);" SERIAL # ";G(A,B)
1290 Z$(A,B)="0":NEXT B
1300 E(A)=1
 310 A=A+1:IFA>5GOTO230
1320 GOTO1160
1330 I=1:A=1:GOTO900
1340 I=1:A=1:GOTO1160
1350 A=1:I=499
1360 IFE(A)<IGOTO1700
1370 CLS:PRINT"DUMPING CONTACTS TO DISC"
1380 GOSUB1920
1390 ON ERROR GOTO 1420
1400 OPEN "I",1,F$
1410 GOTO1750
1420 RESUME1430
1430 PRINTF$;" BEING CREATED NOW.."
1440 ON ERROR GOTO 1820
1450 OPEN "O",1,F$
1460 IFE(A)=1GOTO1520
1470 FORC=1TOE(A)-1
1480 PRINT#1, Z$(A,C);",";Y$(A,C);",";G(A,C)
1490 Z$(A,C)="0"
1500 NEXT C
1510 E(A)=1
1520 CLOSE 1:ON ERROR GOTO 0
1530 GOTO1700
1540 REM K = HOW TO EXIT ROUTINE
 550 K=1
1560 A=1:H=1:CLOSE 1
1570 CLS:PRINT"READING DISC FILES BACK INTO MEMORY"
1580 GOSUB1920
1590 PRINTF$;" NOW BEING READ"
1600 ON ERROR GOTO1850
1610 OPEN "I",1,F$
1620 E(A)=1
1630 IFEOF(1)GOTO1670
1640 INPUT#1,Z$(A,E(A)),Y$(A,E(A)),G(A,E(A))
1650 IFG(A,E(A))=0GOTO1670
1660 H=H+1:E(A)=E(A)+1:GOTO1630
1670 CLOSE 1:IF A=5GOTO1690
1680 A=A+1:GOTO1570
1690 ON K GOTO 230,1340,1330
1700 A=A+1:IFA>5GOTO230
1710 GOTO1360
1720 K=2:GOTO1560
1730 A=1:I=1:GOTO1360
1740 K=3:GOTO1560
1750 PRINT F$;" FILE ALREADY EXISTS. WRITE OVER IT.."
1760 CLOSE 1
1770 PRINT"ENTER (Y OR N)....":GOSUB1960
1780 IFJ$="Y"GOTO1440
1790 IFJ$<>"N"GOTO1770
 800 PRINT"INSERT NEW DISKETTE AND PRESS ANY KEY WHEN READY"
1810 GOSUB1960:GOTO1380
1820 PRINT"ERROR TRYING TO CREATE ";F$;" FILE.TRY ANOTHER DISKETTE.."
1830 RESUME1840
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1840 GOSUB1950:GOTO1380
1850 CLOSE 1:RESUME1860
1860 PRINT"FILE ";F$;" NOT ON THIS DISKETTE.ENTER 'Y' TO "
1870 PRINT"GO ON OR 'N' TO RETRY FROM ANOTHER DISKETTE..."
1880 GOSUB1960
1890 IFJ$="Y"GOTO1670
1900 IFJ$<>"N"GOTO1860
1910 GOTO1570
1920 F$="LOGBND"+RIGHT$(STR$(A),1)+":1":RETURN
1930 END
1940 FORC=1TO500:NEXTC:CLS:RETURN
1950 PRINT"PRESS ANY KEY TO CONTINUE";
1960 J$=INKEY$:IFJ$=""THEN1960ELSERETURN
1970 REM HEAP SORT
1980 N=E(A)-1:IFN=<ORETURN
1985 PRINT"SORTING BY CALL SIGNS"
1990 L=INT((N-1)/2)+1
2000 IFL=1THEN2020
2010 L=L-1:F$=Z$(A,L):J$=Y$(A,L):V=G(A,L):GOTO2050
2020 F$=Z$(A,N):J$=Y$(A,N):V=G(A,N)
2030 Z$(A,N)=Z$(A,1):Y$(A,N)=Y$(A,1):G(A,N)=G(A,1)
2040 N=N-1:IFN=1THEN2130
2050 J=L
2060 M=J:J=2*J:IFJ=NTHEN2100
2070 IFJ>NTHEN2120
2080 IFZ$(A,J)=>Z$(A,J+1)THEN2100
2090 J=J+1
2100 IFF$=>Z$(A,J)THEN2120
2110 Z$(A,M)=Z$(A,J):Y$(A,M)=Y$(A,J):G(A,M)=G(A,J):GOTO2060
2120 Z$(A,M)=F$:Y$(A,M)=J$:G(A,M)=V:GOTO2000
2130 Z$(A,1)=F$:Y$(A,1)=J$:G(A,1)=V:RETURN
```