EDITORIAL:　THE ONE MAN (PERSON) SHOP!

Whether you own the Company or you just work for the company, if you are the only one who is responsible for the programming, then technically you are a one man shop. This is not intended to lessen the importance of your support or clerical staff.

You probably wear a great deal of hats, and are responsible for a variety of jobs. Just to mention a few: teacher, salesman, analyst, manager, documentation specialist, phone operator, sometimes bookkeeper, collections, and lets not forget programmer. To make matters worse you probably have to deal with salesmen that call on you weekly, and who you don't want to see in the first place. I'm sure each of you who fall into this category could list even more job positions than I have.

I guess at this point you're wondering what my point is ? Well ? The point I'm trying to make is that we who call ourselves "PROGRAMMERS", are much much more than that. The businesses for which we work or own, could not do without us, for we are the mainstay of the company. This is not to say that we can not be replaced by another.

If you have managed to survive in this type of environment, my hat's off to you. The more computers come into the market place, the more there will be one man shops. This is mainly because of the facts computers are easier to work with and with a great deal of programming resources available to us.

I have been programming/managing for nearly twenty years, and I can now look back and say that we who are PROGRAMMERS have made and will continue to make differences in the Computer Industry.

Customer Software Support received many questions last month, but none specifically for UP-TIME. So we'll respond to this question submitted by Earl Howell in the August issue.

"WHAT ARE THE DIFFERENCES IN PROGRAMMING A BTI-8000 AND A 5000?"

one sense there is little difference because a BASIC-X program written on a 5000 will, with very few exceptions, run without complications on an 8000. Even so, the 8000 is fundamentally different, and more than just a "big 5000". The hardware, and the organization and naming of files and accounts have been radically redesigned for the usual reason: more power, more speed, more security. For this reason we say that BASIC-X on the 8000 emulates the operating environment of the BTI-5000.

The 8000 offers programmers additional languages and tools: Cobol, Control Mode, Fortran, Pascal, and two flavors of BASIC-X. A larger assortment of factory-supplied utility programs and debugging aids are also provided. As most UP-TIME readers work in BASIC-X, we'll concentrate on that language for now.

On the 8000 a BASIC-X program may be up to ten times larger, virtually eliminations the need for CHAIN and COM statements. Two versions are provided. The first, BASIC-X, utilizes the 8000's full 64-bit numeric precision, allowing accurate work with floating-point numbers between plus and minus 1.79E308.

These bits occupy more file space, so BASIC-XC (C for Compact) is often used by customers upgrading from a 5000. It's precision and file storage requirements duplicate those of the smaller computer. Program statements in all three versions function alike. But manager-type commands were carried over to the 8000 because its architecture requires that equivalent functions be carried out in a different manner. For instance, you can't CHAIN to COMmand files because the 8000 uses DO-files instead.

New BASIC-X features include: The call statement, which allows you to run any compiled program (regardless of language) as an underprocess of BASIC-X; Variable-length files, which expand as needed; Additional PRT, REF, and SEC functions, to accomodate the 8000's greater flexibility.

In XI mode, debugging has been made easier by commands which allow single-step execution of program lines. Up to 32 predetermined Break Points can be installed or cleared in a program. When one has been reached, "NLINE" will display the next line to be executed. Or you can "SKIP" over it if you like. The TRACE command lists each statement or a given number of statements as they are executed. Unlike the "tokenized" format of the 5000, program lines on the 8000 are stored as text, and so can be easily altered with text editors. When I have to develop a program for a 5000, I prefer to write it on our 8000 and then download it.

For a more detailed look at BASIC-X on the BTI-8000, we suggest you call or write our Marketing Technical Publications department. Ask for the BTI 8000 BASIC-X User's guide (part number 9100-0129). The phone number is 408/733-1122.

Ray has also included an article about Shared-memory computer. If interested, send self-addressed envelope requesting it and we'll send a copy.

* * H A R D W A R E   C L A S S I F I E D S * *

1. BTI-5000, 64K, 2-DM980 Disk Drives, 16 Ports, Magnetic Cartridge Drive. $15,000.00. Call Harold Raphael at Trail Blazer Systems. Telephone 415/858-2800.

2. BTI-4000, 2-49 MEG AMPEX Disk Drives, 32k, 32 ports, 4 yrs old. Best offer. 2-COMDATA MODEMS series 330. Call 203/637-8484.

3. BTI-4000, 4-7.5 MEG DIABLO, 1-2.5 MEG removable DIABLO, 8-disk pack, 16-Ports, 4-Crt's, 1-60 CPS LA36. Call Gene Butler at 505/982-5565. Presbyterian Medical Services.

4. (2) Inmac Telecommunications Line Drivers, 300 to 4800 BAUD depending on distance from Host System. RS232C Hook-up. Best offer over $100. Call at Computrol, Inc. 904/252-7041.

5. BTI-4000 - was used on Reynolds & Reynolds VIM III system. Will sell complete or individual parts (Falcon Drives). One Texas Instruments 742 Terminal. Make offer. Call Bob Rosenberg, 513/541-3300.

6. BTI-4000/15, 1-4460 Disk Drive, 1-4560 Magnetic Tape Catridge Drive 08-Ports, Best offer. Call William V. Tefft. 312/677-4040.

* * S O F T W A R E   A D V E R T I S I N G * *

1. MEDICAL SYSTEM - COMPREHENSIVE MEDICAL OFFICE SYSTEM, from Appointment scheduling to 3rd Party Billing and Patient Stats - Computrol, Inc., Daytona Beach, Fl. 32018. 804/252-7041.

2. SDA - ONLINE SCREEN DESIGN AIDE. Allows BTI users to design, add, insert, change, and delete fields. List SCREEN ATTRIBUTES on the CRT or Printer for hard copy documentation. This System includes an interface module for your programs. Used on Lear Seigler, Televideo, and Hazeltine terminals. Call John Johnson. 904/761-8402.

3. MINDS - TERMINAL DRIVEN - DATA Base Mgmt. System and Applications Generator. Perfect for custom applications. DBMS - $900.00. Applications Generator - $600.00, Spread Sheet - $500.00. Contact Bill Schmitt, MDS. 612/472-3033.

4. CONVERT BTI BASIC PROGRAMS to Microsoft 80 program code. Microsoft 80 runs under CPM and directly on the IBM PC. We also have a program to transfer programs and files from the BTI to the Apple II. Call Dick Craiker, Marken Timesharing, Inc. 214/630-8417.

5. WRITE-UP includes 9 well designed, fully integrated modules, all written in our DATABASE MANAGER LIMS. It covers all of the basic Accounting Modules and goes through Inventory. Production Control and Order/Entry (The latter allows simultaneous entry of orders and updates Inventory on the fly). Custom, Reverse video input screens on many modules. Incredibly fast in input and program execution. O-WP Systems, 600 Courtland Ste 270, Orlando, Florida 32804. Call Mike Raborn. 305/628-4717.

6. CONVERT BASICX TO C - The hardware independent language. Upgrade your BTI 4000/5000 to ZILOG 5800 running UNIX (ZUES) - The Advanced Operating System. Training for your staff in Unix and C. Call Dennis R. Thompson at 619/283-6211.

In the TIMESHARING business, there are more aspects than programming and hardware. Thus, we thought we would offer some tips with respect to the Marketing (this month), Insurance (March), and Legal aspects of business (April).

** MARKETING ** (THIS MONTH)

DE SCALE ADVERTISING IS NOT ALWAYS NEEDED TO SUCCEED. A 2" TO 4" IN THE YELLOW PAGES WILL DEFINITELY DRAW CUSTOMERS. ALTHOUGH, PERSONALLY ARGUED AGAINST IT INITIALLY, WE HAVE HAD MUCH SUCESS WITH THE YELLOW PAGES AS WELL AS REFERRALS. ONE TIP ON PLACING AN AD WITH YELLOW PAGES IS THAT AN AD THAT APPEARS TO BE CLUTTERED WILL DETOUR PROSPECTIVE CUSTOMERS.

** SPECIAL PROGRAM OF THE MONTH ** from Trevor M. Evans

In order to make building and editing COMMAND files easier, Timesharing Unlimited, Inc., has created a program called "DANGER" (Name based on its POWER) which will actually open a file, allow you to edit including Add, Change, Delete, List and find occurances within the COMMAND file. Finally, the information is automatically stored to the file. While we are forwarding the program to you, you may find that it might be too long to include in the newsletter. Thus, if people wish, they may write us requesting a listing of the program. DANGER also includes help instructions which can be obtained by simply typing in "HELP".

To set the program, type in "GET-DANGER", RETURN, "RUN", RETURN. When the program requests that you enter the COMMAND file name, enter the NAME you wish to call this COMMAND file. For example, lets say that you the command file "MONTH-END" to execute several reports. To execute the program, you would type in "COM-MONTH-END,L" followed by a return.

We will be comming out with a revision which will allow null strings to be placed in the COMMAND file. Customers love this program since they execute jobs and reports all night long as if they were sitting there at the terminal.

WRITE TO: TIMESHARING UNLIMITED, INC.
                              TRADEMARK SQUARE III METRO CENTER
                              240 GREAT CIRCLE DRIVE, SUITE 326
                              NASHVILLE, TENNESSEE 37228

WELCOME ABOARD "UP-TIME" NEW SUBSCRIBERS **

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UP-TIME

EDITORIAL: DO YOU ENVY THE MANAGER OR PRESIDENT?

Managers, from supervisiors to company presidents, are often envied by
people who have never held a management position. The envy stems, of
course, from the rewards that accompany the position. But, as any
manager will tell you, there is another side to the picture: the
problems and the difficulties.

An executive's sucess depends to a great extent on how well he or she
faces these unpleasant duties and responsibilities. The person who
concentrates on the easy or pleasant part of the job, and who avoids the
tougher, more unpleasant tasks, isn't doing the job.

Not only must managers deal with a steady succession of problems, some
of which are bound to be unpleasant, they also have to keep their
equilibrium in the process. Otherwise they'll be unpleasant to work
with, perhaps even headed for ulcers or a nervous breakdown.

So what do you do about it? Do what you can--that's all anyone can do--
and let GOD handle the worrying.

People often compound their difficulties--and increase tension--by
worrying about ALL their problems at once. When you find yourself
trapped in this case, stop. Pick your most critical problem. Give it
all your attention and do something about it. When you have solved
it--or at least done everything you possibly can about it--pick another
problem and so to work on it.

This is the practical way out--Just do the best you can--so do it and
don't worry. Take up each problem as you get to it. As Casey Stensel
used to tell his baseball players when they began to tighten up in the
homestretch: "We play'em one at a time."

Tension--not hard work--worring instead of doing--is what drains the
energy out of most exectives. And it doesn't get anybody anywhere.

** HARDWARE TIP OF THE MONTH **   from Trevor M. Evans

We have found that by placing an average room humidifier in the computer room and maintaining a humidity level between 50% and 55%, approximately 99.9 % of unexplainable but probably static related problems are eliminated, both with ports, flashing O.Os and voltage spikes and surges to the communications equipment. While these units usually do not cost over $40.00, we feel that this investment is imperative, particularly in the computer room. It is also desirable to have one in the office area, especially during the cooler weather when the heaters are pumping out hot (low-humidity) air.

**   PROGRAM OF THE MONTH   **

Since no one felt the urge to send a program for this month, I guess you're stuck with another one of mine. This program is the same one I use to build the UP-TIME Newsletter, documentation sheets, letters, or anything of which word processing would help. You might even say that this program is a mini-word processor. You can see the ledgen in lines 2740 thru 2820 to understand how it works. Try it you might like it.

```
INFO
0010 DIM A$[254],B$[254],C$[254]
0020 DIM #1[32],F$[20],S$[3]
0030 PRINT CHR$(26),CHR$(10),CHR$(10)
0040 PRINT
0050 PRINT "***   CREATE OR UPDATE   INFORMATION LIST   ***"
0060 PRINT
0070 DIM I$[20]
0080 INPUT "ENTER    DOCUMENT NAME - ",I$
0090 FILE #1,3;I$
0100 FILE #2,4;I$
0110 F$=I$
0120 GOTO 200
0130 PRINT
0140 PRINT "THE FILE '"I$"' DOES NOT EXIST !!"
0150 PRINT
0160 INPUT "DO YOU WANT ME TO BUILD IT FOR YOU ?- ",A$
0170 IF A$#"Y" THEN 30
0180 FILE #32,7;I$
0190 GOTO 80
0200 IF NOT TYP(-1) THEN 130
0210 PRINT CHR$(10),CHR$(10)
0220 GOTO 240
0230 PRINT CHR$(26),CHR$(10),CHR$(10)
0240 PRINT "OPTIONS: 1. = ADD OR INSERT A LINE"
0250 PRINT "         2. = CHANGE OR UPDATE A LINE"
0260 PRINT "         3. = DELETE OR DROP A LINE"
0270 PRINT "         4. = LIST DOCUMENT ON CRT"
0280 PRINT "         5. = PUBLISH DOCUMENT ON PAPER"
0290 PRINT "         6. = END PROGRAM"
0300 PRINT
0310 J3=J4=J5=E8=0
0320 PRINT #2
0330 FILE #1;F$
0340 READ #2,1
0350 INPUT "OPTION - ",O$
0360 IF ASC(O$)>57 THEN 230
0370 IF ASC(O$)<49 THEN 230
0380 PRINT
0390 O=VAL(O$)
0400 GOSUB O OF 460,1280,1060,2110,2580,2830
0410 IF O>0 AND O<4 THEN 310
0420 IF O=4 THEN 230
0430 IF O=5 THEN 230
0440 PRINT "INVALID OPTION"
0450 GOTO 230
0460 PRINT "***   ADD   OR   INSERT   ***"
0470 PRINT
0480 GOSUB 2650
0490 E9=0
0500 ON END #1 THEN 580
0510   FOR A1=1 TO 8
0520   READ #1;A$
0530   READ #2;A$
0540   C$=A$
```

```
0550    NEXT A1
0560   ON END #1 THEN 600
0570   READ #1;B$
0580   GOTO 610
0590   IF A1#S THEN 1520
0600   E9=1
0610   IF E8 THEN 710
0620   PRINT
0630   IF S THEN PRINT A$
0640   IF S THEN 690
0650   PRINT "INSERT AT BEGINNING OF FILE"
0660   GOTO 690
0670   PRINT "**   NO    INSERTION   **"
0680   GOTO 1050
0690   PRINT
0700   PRINT "DATA TO INSERT AFTER ? - "
0710   PRINT
0720   INPUT "",A$
0730   IF LEN(A$) THEN PRINT LEN(A$)
0740   IF A$[1:4]#"DUP-" THEN 820
0750   I1=VAL(A$[5])
0760   A$=C$
0770    FOR I=1 TO I1
0780    ON END #2 THEN 1050
0790    PRINT #2;A$
0800    NEXT I
0810   GOTO 1050
0820   IF A$="" THEN 670
0830   PRINT #2;A$; END
0840   IF E9=1 THEN 900
0850   ON END #1 THEN 900
0860   ON END #2 THEN 930
0870   PRINT #2;B$; END
0880   READ #1;B$
0890   GOTO 870
0900   ON END #1 THEN 0
0910   ON END #2 THEN 0
0920   GOTO 980
0930   PRINT
0940   PRINT "****    FILE IS NOT BIG ENOUGH TO HOLD ADDED DATA   ****"
0950   PRINT "****    THE LAST  LINE ON THE FILE WAS DESTROYED    ****"
0960   PRINT
0970   GOTO 900
0980   IF NOT E9 THEN 1050
0990   S=S+1
1000   FILE #1;F$
1010   PRINT #2
1020   READ #2,1
1030   E8=1
1040   GOTO 490
1050   RETURN
1060   REM: ---DELETE---
1070   PRINT "**  DELETE A LINE   **"
1080   PRINT
1090   GOSUB 2650
1100   ON END #1 THEN 1520
1110    FOR A1=1 TO S-1
1120    READ #1;A$
1130    READ #2;A$
1140    NEXT A1
1150   READ #1;A$
1160   PRINT A$
1170   INPUT "OK TO DELETE ?   ",I$
1180   IF I$[1:1]="Y" THEN 1210
1190   PRINT "*   NO   DELETE   *"
1200   GOTO 1270
1210   ON END #1 THEN 1250
1220   READ #1;A$
1230   PRINT #2;A$
1240   GOTO 1220
1250   PRINT #2; END
1260   ON END #1 THEN 0
1270   RETURN
1280   PRINT "*** CHANGE OR UPDATE ***"
1290   PRINT
1300   FILE #1;F$
1310   PRINT #2
1320   READ #2,1
1330   GOSUB 2650
1340    FOR A1=1 TO S-1
1350    ON END #1 THEN 1520
1360    READ #1;A$
```

3

```
1370  READ #2;A$
1380  NEXT A1
1390 READ #1;A$
1400 PRINT "OLD- ";A$
1410 INPUT "NEW- ",B$
1420 PRINT
1430 IF B$="H" THEN 1410
1440 T=LEN(B$)
1450 T1=LEN(A$)
1460 IF T-1>T1 THEN A$[1:T]=A$
1470 C$=A$
1480 IF B$#"" THEN 1640
1490 PRINT "*  NO  UPDATE  *"
1500 GOTO 1800
1510 IF A1=S THEN 600
1520 PRINT
1530 PRINT "LINE # ";S" NOT FOUND IN FILE"
1540 PRINT
1550 IF O#3 THEN 1580
1560 PRINT "LAST LINE # IS - ";A1
1570 GOTO 1590
1580 PRINT "NEXT LINE # SHOULD BE - ";A1
1590 PRINT
1600 IF O=3 THEN 1620
1610 PRINT "TAKE  OPTION #1  AND  ADD NEW LINE"
1620 PRINT CHR$(10)
1630 RETURN 240
1640  FOR I=1 TO 80
1650  T$=B$[I:I]
1660  IF T$="^" THEN 1810
1670  IF T$="[" THEN 1850
1680  IF T$=">" THEN 1990
1690  NEXT I
1700 A$=B$
1710 PRINT #2;A$
1720 PRINT "NEW- ";A$
1730 IF LEN(A$) THEN PRINT LEN(A$)
1740 ON END #1 THEN 1780
1750 READ #1;A$
1760 PRINT #2;A$
1770 GOTO 1750
1780 PRINT #2; END
1790 ON END #1 THEN 0
1800 GOTO 1290
1810 REM: ^ MEANS TO INSERT HERE
1820 A$[I]=B$[I+1]
1830 A$[T]=C$[I]
1840 GOTO 1710
1850 REM: [ MEANS TO DELETE HERE TO NEXT ]
1860 U$="]"
1870  FOR I1=I+1 TO 80
1880  T$=B$[I1:I1]
1890  IF T$=U$ THEN 1940
1900  NEXT I1
1910 A$[I:80]=""
1920 A$=A$[1:I-1]
1930 GOTO 1710
1940 U=LEN(A$)
1950 IF I+1=I1 THEN I1=I1-1
1960 A$[I:U]=C$[I1+1]
1970 A$=A$[1:LEN(A$)-(I1+1-I)]
1980 GOTO 1710
1990 REM:
2000 U$="<"
2010  FOR I1=I+1 TO 80
2020  T$=B$[I1:I1]
2030  IF T$=U$ THEN 2060
2040  NEXT I1
2050 GOTO 2080
2060 A$[I:I1-2]=B$[I+1:I1-1]
2070 GOTO 1710
2080 A$[I]=B$[I+1]
2090 GOTO 1710
2100 J4=S=1
2110 REM: PRINT
2120 IF J4 THEN 2160
2130 PRINT "** LISTING **"
2140 PRINT
2150 GOSUB 2650
2160 J1=J2=J3=0
2170 PRINT CHR$(26)
2180  FOR J=1 TO 9999
```

```
2190    ON END #2 THEN 2450
2200    READ #2;A$
2210    IF J >= S THEN 2230
2220    GOTO 2420
2230    J1=J1+1
2240    IF NOT J4 THEN 2270
2250    PRINT A$
2260    GOTO 2280
2270    PRINT J;"   ";A$
2280    IF J4 THEN 2420
2290    IF J1#20 THEN 2420
2300    PRINT
2310    INPUT "PRESS RETURN ",B$
2320    PRINT
2330    J2=1
2340    J1=0
2350    IF ASC(B$)<49 THEN 2410
2360    IF ASC(B$)>57 THEN 2410
2370    S=VAL(B$)
2380    J3=1
2390    GOSUB 2670
2400    GOTO 2160
2410    IF LEN(B$) THEN 2430
2420    NEXT J
2430 PRINT
2440 RETURN
2450 REM: END CHECK
2460 IF NOT J4 THEN 2540
2470 PRINT CHR$(12)
2480 J5=J5-1
2490 IF NOT J5 THEN 2520
2500 READ #2,1
2510 GOTO 2100
2520 PRINT CHR$(19)
2530 GOTO 2440
2540 IF J2 THEN 2430
2550 PRINT
2560 INPUT "PRESS RETURN ",B$
2570 IF B$#"" THEN 2350
2580 RETURN
2590 PRINT
2600 INPUT "ENTER NO. OF COPIES - ",J5
2610 PRINT
2620 INPUT "ALIGN PRINTER & PRESS 'CR' ",I$
2630 GOSUB 2100
2640 RETURN
2650 REM: GET LINE NO.
2660 INPUT "ENTER LINE NO. - ",S$
2670 FILE #1;F$
2680 READ #2,1
2690 IF J3=1 THEN RETURN
2700 IF NOT LEN(S$) THEN RETURN 230
2710 S=VAL(S$)
2720 RETURN
2730 REM: HELP INFORMATION
2740 PRINT "SYMBOL -   EXPLANATION"
2750 PRINT
2760 PRINT "^     - INSERT STARTING RIGHT HERE"
2770 PRINT
2780 PRINT "[ ] - DELETE STARTING @ '[' UNTIL END OF LINE/OR NEXT ']'"
2790 PRINT
2800 PRINT "> < - CHANGE STARTING @ '>' UNTIL END OF LINE/OR NEXT '<'"
2810 PRINT
2820 RETURN
2830 END
```

S

** SERIOUS MATTERS ** JOHN A. JOHNSON

THIS IS THE PART OF THIS NEWSLETTER I DISLIKE WRITING. BUT SINCE
ONLY A SELECT FEW SEEM TO RESPOND TO OUR REQUEST TO SUBMIT PROGRAMS OR
ITEMS OF INTEREST, I AM FINDING IT NECESSARY. THE INTENT OF THIS NEWS-
LETTER WAS TO TAKE ALL INFORMATION SUBMITTED(?) AND TRY TO ASSEMBLE IT
INTO SOME ORDERLY FASHION. SINCE THERE IS VERY LITTLE INFORMATION
SUBMITTED, IT DOESN'T TAKE LONG REORDER WHAT DOESN'T COME IN. THIS IS
ANOTHER REQUEST TO HELP ME GIVE YOU AND YOUR FELLOW SUBSCRIBERS A WORTH-
WHILE NEWSLETTER WHICH WOULD BE WORTHY OF EACH OF YOU. IF YOU ARE NOT
HAPPY WITH WHAT YOU'RE READING EACH MONTH IT COULD BE BECAUSE YOU HAVE
NOT LET US KNOW WHAT YOU'RE IN NEED OF. PLEASE TAKE A FEW MINUTES
OUT OF YOUR BUSY SCHEDULE AND LET ME KNOW WHAT YOU'RE INTERESTED IN OR
BETTER YET SEND IN AN ARTICLE.!!

INCREASING THROUGHPUT PROGRAMMATICALLY--Part One

There are two relatively simple ways to speed up your model 5000. A surprising number of our customers fail to take adavantage of them. The first, and most important, is reducing the number of disk accesses. This can be accomplished by increasing the size of the file buffers. Every time your program draws data from the disk, it must wait for:

    (1) Necessary operating system overhead (swaps, for example).
    (2) Disk requests of other users in line ahead of you.
    (3) The average 50 milliseconds necessary for the drive to move
        and park the pickup head(s) over the right cylinder.

When your program pulls data from the disk, it is copied into an area reserved in your port workspace called a buffer. Subsequent manipulations to that data are done in memory. If you do not specify a buffer's size, the default value is one sector, the equivalent of 254 characters or 64 floating-point numbers. This means that if you wanted to examine an array of 65 cells, TWO reads would have to be made; one for cells one through 64 and a second to acquire that last number from the following sector. If you doubled the size of that file's buffer ("DIM #1[2]"), the system would fill it two sectors at a time. Only one read would be necessary.

To demonstrate this, we opened two identical files of ten sectors each on volumes 1 and 12. We then wrote a short program which read a 254-character string from sector one on volume one, and another from sector one on volume 12. Then it read sector two from both, and so on to the end of the files. We repeated this for 100 passes on an unloaded system. The time per read was .124 seconds. We then changed the buffer size for each file: "DIM #1[10], DIM #2[10]". The time per seek dropped to .023 seconds, because only two seeks were necessary to pull all of both files into core. You probably won't be able to make your programs run six times faster--this test was set up to prove a point. If your program has memory left over, however, buffers are the best place to spend it. When your program "hogs the disk", everyone else has to wait.

The maximum allow per file is 32. Efficiency gains diminish with sizes larger than six. The programmer must determine experimentally which files deserve the biggest share of available memory. If reads and writes are to be made to sector five and then sector 93, two accesses will still be required--even the largest possible buffer could not hold all the sectors in between. We suggest placing counters, i.e., "C=C+1" after each PRINT# and READ# statement during program development. Displaying the values of these counters after a test run will tell you which file is being exersied the most.

It makes sense to design your programs and disk-based data structures from the beginning with multiple buffers in mind. Compared to a read from the disk, a read from in-core storage is (relatively speaking) instantaneous.

The BASIC-X USER'S MANUAL describes file buffers on page 4-4. Questions? Call BTI CSS. Next issue, we'll describe how to make cross-file accesses quicker.

** H A R D W A R E   C L A S S I F I E D S   **

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** S O F T W A R E   A D V E R T I S I N G   **

1. MEDICAL SYSTEM - COMPREHENSIVE MEDICAL OFFICE SYSTEM, from Appointment scheduling to 3rd Party Billing and Patient Stats - Computrol, Inc., Daytona Beach, Fl. 32018. 904/252-7041.

2. SDA - ONLINE SCREEN DESIGN AIDE. Allows BTI users to design, add, insert, change, and delete fields. List SCREEN ATTRIBUTES on the CRT or Printer for hard copy documentation. This System includes an interface module for your programs. Used on Lear Seigler, Tele-video, and Hazeltine terminals. Call John Johnson. 904/761-8402.

3. MINDS - TERMINAL DRIVEN - DATA Base Mgmt. System and Applications Generator. Perfect for custom applications. DBMS - $900.00. Applications Generator - $800.00, Spread Sheet - $500.00. Contact Bill Schmitt, MDS. 612/472-3033.

4. CONVERT BTI BASIC PROGRAMS to Microsoft 80 program code. Microsoft 80 runs under CPM and directly on the IBM PC. We also have a program to transfer programs and files from the BTI to the Apple II. Call Dick Craiker, Marken Timesharing, Inc. 214/630-8417.

5. WRITE-UP includes 9 well designed, fully integrated modules, all written in our DATABASE MANAGER LIMS. It covers all of the basic Accounting Modules and goes through Inventory. Production Control and Order/Entry (The latter allows simultaneous entry of orders and updates Inventory on the fly). Custom, Reverse video input screens on many modules. Incredibly fast in input and program execution. O-WP Systems, 600 Courtland Ste 270, Orlando, Florida 32804. Call Mike Raborn. 305/628-4717.

6. CONVERT BASICX TO C - The hardware independent language. Upgrade your BTI 4000/5000 to ZILOG 5800 running UNIX (ZUES) - The Advanced Operating System. Training for your staff in Unix and C. Call Dennis R. Thompson at 619/283-6211.

EDITORIAL: TO ERR OR NOT TO ERR ?

Make sure you generate a reasonable number of mistakes.   I know that
comes naturally to some people, but too many executives are so afraid
of error that they rigidify their organization with checks and
counterchecks, discourage innovation, and, in the end, so structure
themselves that they will miss the kind of offbeat opportunity
that can send a company skyrocketing. So take a look at your record,
and if you can come to the end of a year and see that you haven't
made any mistakes, then I say brother, you Just haven't tried
everything you should have tried.

It is a cliche' to say that we learn by our mistakes, but I'll state
the case more strongly than that: I'll say you can't learn without
making mistakes.

** SPECIAL NOTICE **

/

BTI COMPUTER SYSTEMS will hold the first annual BTI EASTERN REGIONAL
Users meeting to be held May 7th and 8th at the Don CeSar in sunny
St. Petersburg, Florida.

Jon Nickerson, Vice President, BTI, will give an update on BTI and their
plans for 1984. On Tuesday there will be an exchange of information
on Software available from individual users.

I hope to see many of you there. I am also glad to see that BTI seems
to feel the way that many of us do, that is that we are a data
processing community and we must organize like one.

* * H A R D W A R E   C L A S S I F I E D S * *

1. BTI-5000, 64K, 2-DM980 Disk Drives, 16 Ports, Magnetic Cartridge
    Drive. $15,000.00. Call Harold Raphael at Trail Blazer Systems.
    Telephone 415/858-2800.

2. BTI-4000, 2-49 MEG AMPEX Disk Drives, 32k, 32 ports, 4 yrs old. Best
    offer. 2-COMDATA MODEMS series 330. Call 203/637-8484.

3. BTI-4000, 4-7.5 MEG DIABLO, 1-2.5 MEG removable DIABLO, 8-disk pack,
    16-Ports, 4-Crt's, 1-60 CPS LA36. Call Gene Butler at 505/982-5565.
    Presbyterian Medical Services.

4. (2) Inmac Telecommunications Line Drivers, 300 to 4800 BAUD depend-
    ing on distance from Host System. RS232C Hook-up. Best offer over
    $100. Call at Computrol, Inc. 904/252-7041.

5. BTI-4000 – was used on Reynolds & Reynolds VIM III system. Will
    sell complete or individual parts (Falcon Drives). One Texas Instru-
    ments 742 Terminal. Make offer. Call Bob Rosenberg, 513/541-3300.

6. HARDWARE WANTED: USED OKI-DATA 60 MB DISK DRIVE for use with a BTI-
    5000. Call Larry Chapman, Hendry Corporation, 813/831-1211 EXT. 53.

* * S O F T W A R E   A D V E R T I S I N G * *

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    Applications Generator – $600.00, Spread Sheet – $500.00.
    Contact Bill Schmitt, MDS. 612/472-3033.

    ②

4. RECOMS (Real Estate Computerized On-Line Matching System) – Enables
    BTI System Users to search, match, and list real estate and prospec-
    tive buyers. Additional features: * Message System * Comparitive
    Price Analysis * Investment Programs * Financial Spread Sheet *
    Documentation * Trend Analysis *. Runs under MARS (Product of GRW
    Systems, Inc.) $5,000.00 without MARS License. Installment payment
    plan available. Contact D.J. Webb Timesharing Unlimited, Inc.
    615/242-4477, 240 Great Circle Road, Suite 326, Nashville, TN. 37228

5. WRITE-UP includes 9 well designed, fully integrated modules, all
    written in our DATABASE MANAGER LIMS. It covers all of the basic
    Accounting Modules and goes through Inventory. Production Control
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INCREASING THROUGHPUT PROGRAMMATICALLY--Part Two

Last month, we discussed why a program runs faster when file buffers are expanded. Once all of a program's available memory has been allocated to files in the most efficient manner, other steps can be taken to improve speed.

The average time required for a disk drive to park its pickup heads over the right track is about 50 milliseconds. That time can be much more or less, depending on how far the heads have to jump from track to track in the course of business. Volume one, which contains swaptracks and frequently-accessed system tables, is placed right in the middle of the disk platter to minimize average seek-time. Volumes 2, 4, 6, and 8 proceed outward, toward the rim. Volumes 3, 5, and 7 proceed in toward the spindle. On a typical 30-MB system, Volumes 11 and 12 are furthest apart. A program which alternately accesses data on both is bound to run more slowly, because the pickup heads will spend more time jumping than reading.

We wrote a program which performs 1,000 alternating reads from two files, and averages the time required for each. The only change made for these tests were changes in the physical location of the target files.

First File Volume	Second File Volume	Average Time per Read
1	1	.0423 seconds
1	12	.1241
11	12	.1634

Of course, moving something to the prime Real Estate on Volume One means that something else has to be moved further away from home. One approach to the decisions would be to run the $$$REPORT program, noting which accounts have accumulated the most connect time. Another would be to run the $$$CATALOG program, noting which files are most frequently accessed. Output from both these programs can be put into files, which can then be sorted with $$$F-SORT.

One simple favor you can do for your users is to move spare volumes and shadow accounts to the highest numbered volumes.

More information about account placement can be found in the BTI 5000 MANAGER'S MANUAL, page 2-3. Other useful tips on how to increase throughput can be found on page 1-11, under "MAXIMIZING PROGRAM EFFICIENCY."

NEXT ISSUE: Questions and Answers.

** HARDWARE TIP OF THE MONTH **   from Bill Schmitt

DREADED FALCON DRIVES: This is a full reprint of last year's article.

Even CDC admits unofficially that these were a bit less than the world's
greatest idea. The fundamental problem is their brush-type D.C. motor,
which wears out its brushes and fails without warning anywhere between
3 and 9 months of continuous running. When one of the four brushes wear
beyond the armature, the resulting sparking puts a good deal of elect-
rical noise all over the place, and this can cause errors to be written
on other Falcon drives. If the errors are CRC (parity) (error code
ending in 06 octal), the data in the errored sector is gone, but the
file can be recovered from Basic by writing over the errored sector. If
you have a format or header error (ending in 12 octal), then the entire
disk must be reformatted, but you can recover the file by copying around
the errored sector. The Falcon motor comes with 7 magnets, with space
for an eighth. We have added this eighth magnet, which makes the motor
more efficient and run cooler, and we are getting at least 9 month's
life on the brushes. One thing that does effect brush life is operating
temp, so running the system as cool as possible helps. We let our system
site go down to 40F. in the winter. As Don Fry mentions, when the
brushes are replaced, it is necessary to remove the armature and com-
pletely vacuum out the motor chamber, because the carbon dust can cause
electrical noise all by itself. It should be possible to retrofit a
brushless D.C. motor to these drives, but finding one to fit into the
available space has so far been fruitless.

**   PROGRAMS OF THE MONTH   **   from Chris Suver

I had no end of problems keeping straight the accounts and volumes on
our disks before I started using ACCOUNTS. BTI's manual shows nice easy
to read volume/account pictures in their examples but they do not
provide a program to display the same data in such a nice format with
the system. I finally invested the time to write a report that would
give me an easy to read output of what accounts are located on which
volumes.

To use it open a file named RESOURCE with as many sectors as you have
volumes on your system. Run DISKSPACE and, when its done, run ACCOUNTS.
If the baud rate at which you are printing is greater than 300 it
assumes you are on a CRT and waits for a return after each 10 volumes at
300 baud or less assumes you're printing on a printer and does not wait.

```
ACCOUNTS
 0010 DIM D$[20],#1[32],A[10,64],B[64]
 0020 DEF FNA(X)=64+INT(X/1000)
 0030 DEF FNB(X)=X-1000*INT(X/1000)
 1000 GOSUB 8000
 1010 FILE #1,3;"#@002,RESOURCE"
 1020 IF TYP(1) THEN 1050
 1030 PRINT "PLEASE LOAD RESOURCE FILE"
 1040 END
 1050 READ #1,1
 1060 IF TYP(-1)#1 THEN 1030
 1070 PRINT CHR$(12)
 1080 PRINT TAB(15);"ACCOUNT REPORT ON ";D$;" AT ";
 1090 PRINT USING "DD.DD";REF(1)/36000
 1100 PRINT
 1110  FOR R=1 TO 101 STEP 10
```

```
1120    GOSUB 2000
1130    IF NOT C THEN 1440
1140    GOSUB 3000
1150     FOR J=3 TO 4
1160      FOR D=1 TO C
1170      PRINT USING 1180;A[D,J]
1180      IMAGE #,"I",5D,X
1190      NEXT D
1200     PRINT "I"
1210     NEXT J
1220     FOR D=1 TO C
1230     PRINT "I      ";
1240     NEXT D
1250    PRINT "I"
1260     FOR J=10 TO 63
1270      FOR D=1 TO C
1280      IF A[D,J] THEN 1310
1290      NEXT D
1300     GOTO 1400
1310     PRINT "I";
1320      FOR D=1 TO C
1330      IF NOT A[D,J] THEN 1360
1340      PRINT " ";CHR$(FNA(A[D,J]));
1350      PRINT USING "#,3Z";FNB(A[D,J])
1360      PRINT TAB(7*D);"I";
1370      NEXT D
1380     PRINT
1390     NEXT J
1400    GOSUB 4000
1410    PRINT CHR$(10)
1420    IF PRT(-1)>300 THEN INPUT "",G$
1430    NEXT R
1440 PRINT CHR$(12)
1450 END
2000 C=0
2010 MAT A=ZER
2020 ON END #1 THEN 2110
2030  FOR B=R TO R+9
2040  MAT B=ZER
2050  MAT READ #1,B;B
2060   FOR I=1 TO 64
2070   A[B-R+1,I]=B[I]
2080   NEXT I
2090  C=C+1
2100  NEXT B
2110 ON END #1 THEN 0
2120 RETURN
3000 GOSUB 4000
3010  FOR I=R TO R+C-1
3020  PRINT USING 3030;I
3030  IMAGE #,"I",4D,XX
3040  NEXT I
3050 PRINT "I"
3060 GOSUB 4000
3070 RETURN
4000 PRINT "+";
4010  FOR I=1 TO C
4020  PRINT "-------+";
4030  NEXT I
```

⑤

```
4040 PRINT
4050 RETURN
8000 REM LOAD D$
8010 DIM M[12]
8020 DATA 31,28,31,30,31,30,31,31,30,31,30,31
8030 DATA "JANUARY","FEBRUARY","MARCH","APRIL","MAY","JUNE"
8040 DATA "JULY","AUGUST","SEPTEMBER","OCTOBER","NOVEMBER","DECEMBER"
8050 MAT READ M
8060 D1=REF(2)
8070 D3=REF(3)
8080 IF D3/4=INT(D3/4) THEN M[2]=29
8090 D2=1
8100 IF D1 <= M[D2] THEN 8140
8110 D1=D1-M[D2]
8120 D2=D2+1
8130 GOTO 8100
8140 REM
8150  FOR D=1 TO D2
8160  READ D$
8170  NEXT D
8180 PRINT USING "DDDD",D$[LEN(D$)+1];D1
8190 D$[LEN(D$)-3]=D$[LEN(D$)-3]+"0"
8200 D$[LEN(D$)+1]=", 19"
8210 PRINT USING "ZZ",D$[LEN(D$)+1];D3
8220 RETURN
9999 END


DISKSPACE
0010 COM A$[16],B$[54],P$[16],L
0020 DIM A[64]
0030 MAT A=ZER
0040 A[64]=1
0050 FILE #1,4;"RESOURCE"
0060 ON END #1 THEN 100
0070  FOR J=1 TO 99999
0080  MAT PRINT #1,J;A
0090  NEXT J
0100 FILE #1,4;"RESOURCE"
0110 MAT READ #1,1;A
0120 P$="DISKSPACE"
0130 PRINT USING "DD",A$;A[64]
0140 N=4900
0150 L=170
0160 CHAIN "#@005,PORTINFO",N
0170 REM RETURN FROM PORTINFO
0180 IF NOT B[1] THEN END
0190 REM PRINT OUT WHAT WE FOUND
0200 FILE #1,4;"RESOURCE"
0210 READ #1,1
0220 MAT READ #1;A
0230 D=A[64]
0240 A[64]=A[64]+1
0250 MAT PRINT #1,1;A
0260 ON END #1 THEN 410
0270 MAT READ #1,D;A
0280 IMAGE "DISK # ",ZD,"   AVAIL - ",4Z,"   CONTIG - ",4Z
0290 PRINT USING 280;D,B[3],B[4]
0300 A[D]=D
```

6

```
0310 A[2]=B[2]
0320 A[3]=B[3]
0330 A[4]=B[4]
0340  FOR J=5 TO 54
0350  A[J+5]=B[J]
0360  NEXT J
0370 ON END #1 THEN 410
0380 MAT PRINT #1,D;A
0390 A$=""
0400 GOTO 110
0410 END
```

** SPECIAL THANKS **

I would like to think each of you who have sent in programs and items
of interest to print. They have really help me to have something to
print without padding lines with air-filled words. THANKS AGAIN !

** LEGAL DISCLAIMERS ** from Trevor M. Evans

UNDER THE UCC (UNIFORM COMMERCIAL CODE) LAW, DISCLAIMERS IN BOUND DOCU-
MENTATION OR LINE PRINT SUCH AS ON A CRT MUST BE IN CAPITAL LETTERS AND
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WE URGE YOU TO CONTACT YOUR LAWYER CONCERNING DETAILS AND APPLICABILITY
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** L E G A L ** from Trevor M. Evans

UNFORTUNATELY, CUSTOMERS WHO WISH TO "DEAD-BEAT" PAYMENTS TO YOU MAY REQUIRE YOU TO RESORT TO COLLECTION PROCEDURES. IN TENNESSEE AND MOST OTHER STATES, YOU MUST INCLUDE PARAGRAPHS SUCH AS THE FOLLOWING SAMPLES IN YOUR PROPOSALS, CONTRACTS, AND ALSO IN EACH OF YOUR STATEMENTS IN ORDER TO ENFORCE PAYMENT WITHIN 30 DAYS OR EARLIER AND ALSO TO COLLECT ATTORNEYS' FEES IN CASE COLLECTION SUITS ARE FILED:

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FOR STATEMENTS:

All sums not paid within 30 days of the date Year-end shall bear interest until paid and such interest shall be payable on the sum on which it accrues. Customer will pay all costs of collection including but not limited to attorney's fees.

IF YOU PLACE THE ABOVE PARAGRAPHS IN YOU PROPOSALS AND STATEMENTS, USUALLY THE COURT WILL AWARD YOU ATTORNEYS' FEES AS WELL AS THE INTEREST AND PRINCIPAL AMOUNT. HOWEVER, TIMESHARING ULIMITED, INC., DOES NOT CLAIM TO BE A LEGAL EXPERT AND SUGGESTS THAT YOU CONTACT YOUR ATTORNEY AS TO THE CORRECTNESS AND APPLICABILITY OF THESE CLAUSES FOR YOUR AREA.

** NOTABLE QUOTES **

A doctor specializing in internal medicine had a simple formula for disposing of businessmen with certain types of nervous indigestion. He would ask if they played golf. If so, he told them to give it up. If not, he told them to take it up.

EXPERIENCE is a wonderful thing. It enables you to recognize a mistake when you make it again.

SATISFACTION: If you don't get everything you want, think of the things you don't get that you don't want.

A conference room is a place where everybody talks, nobody listens, and everyone disagrees afterward.

If you are willing to admit you are wrong when you are wrong, then you are all right.

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P.O. BOX 185
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EDITORIAL: EMPLOYEES ?

Dealing with employee's personal problems is one of a supervisor's
most difficult Jobs. If a worker is not stable enough to perform well
on the Job, the manager or supervisor must try to get to the root
of the difficulty. On the other hand, he or she must avoid getting
embroiled in melodramas, interpersonal conflicts, and lawsuits.

It is vital to approach the troubled employee in a compassionate,
helpful way. For example, the supervisior may point out the difference
between company standards and the employee's performance and ask
what the problem is.

A manager might introduce the problem by saying: "A lot things can
affect a person's Job performance. It could be something the company
or I have done. It could even be related to your health or home
life. I want you to know, whatever it is, I'm here to help you get
your performance back up to par."

Upon hearing this, the employee understands that the supervisor is
willing to listen, but that he isn't demanding to be told, either.

The employee might then reveal his problem. What's the next step?
If drugs, alcohol, or difficulties with a spouse or child is the
source of trouble, it's best to refer the worker to a medical facility,
mental health agency, or community program.

** WELCOME NEW SUBSCRIBERS **

Bob Rosenberg	Superior Chevrolet-Honda	Cincinnati, Oh.
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** HARDWARE CLASSIFIEDS **

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7. BTI-5000, 64k, 2-80 MEG removable disks, 1 Cartridge tape drive. Cost - $67,875.00 Asking $25,500.00. Empire Lease Co., Spokane, Wa. Phone - 509/747-3085. EXP. 7-15

8. 8 Ports for a BTI-5000 6 - Disk packs 65 MEG. each for BTI-5000. Asking for best offer by July 15, 1984. If interested call Computer AWARENESS AT 904/255-8838. Ask for Earl or mail offers to: Computer Awareness 709 S. Ridgewood Ave. Daytona Bch, Fl. 32014

** SOFTWARE ADVERTISING **

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** ASK BTI'S CSS DIVISION ** from Ray Smith

Q. Why can't (or won't) BTI offer a REPlace Command in addition to KIL-
and SAV? This would be of great help... (Gene Butler). Implementing
fixed-length string arrays shouldn't be very difficult... (Dave Green)

A. Your idea for a REPlace command has been written up as a suggestion-
type SPR (Software Performance Report) and sent to R&D for consideration
on the 8000. Dave's suggestion was forwarded two months ago. As a
result, developement of string arrays for the 8000 has begun. Model 5000
changes will probably be longer in arriving. The 5K system engineers
are currently making a maximum effort to develop the expanded- memory
model 6000. A considerable number of customers have expressed interest
in buying them, when they become available.
    Our engineers will make custom alterations to the multus operating
system for those customers who need them enough to pay for the time and
labor costs.

Q. In reading the manual, I found out that we should be using port
tie-downs. What happens if we don't? (John A. Johnson)

A. Port tie-downs, also known as "dummy plugs", prevent the introduction
of electrical interference into the system through unoccupied sockets in
the port panel. This is not likely to happen if your system resides in
an electrically quiet environment. By quiet, we mean that the hot and
neutral power wires haven't been reversed; that it has a solid,
independent ground; that it's physically separated from sources of
interference, such as power panels or other computers; that the system
doesn't have a prior history of halt 0.0's or 88's. The most frequent
sympton of a noisy environment is timing-in-progress stars on the ROSter
    If you have none of these problems, you can probably live without
tie-downs. Some customers RPS unoccupied ports to run programs on them,
and EVIct the job on completion. In that instance, a dummy plug in the
socket is necessary for reliable operation.

Q. If a service bureau buys ports or drives from another bureau, how do
we get instructions for installing them? Where do we get manuals and
board diagrams? Who updates the operating system...? (Trevor Evans)

A. Instructions for the installation of non-BTI supplied parts are not
covered by your maintenance contract, but will be supplied by our Phones
Engineers at an hourly rate. They will also upgrade your operating
system or if necessary, replace it with a new one that you purchase from
Software Services. Technical manuals may be purchased from our Technical
Publications division.
    Before your contract can be extended to cover the additional
hardware, a Phones Engineer will have to dial into your system to test
it. The engineer will also change your site information file afterwards.
    Buying a part from a neighbor may actually be more expensive than
buying it from the factory when all these costs are added in. You can
find out in advance by calling your nearest regional sales office. Your
sales representative will get you an estimate, and help co-ordinate
whatever services you require.

Q. Are there any preventative maintenance procedures for Okidata Drives
to extend their service life? Ours last about fourteen months.
(Trevor Evans)

A. Other than common-sense treatment of the drive and the system, no.
The disk platters on Okies and other Winchester-type drives are sealed
in an airtight envelope. Unlike removable-media disk drives, there are
no filters to change, and no user-accessible adjustments to make.

Keep those cards and letters coming in, folks.--Ray

** HARDWARE TIP OF THE MONTH **   NONE SUMMITTED
** SOFTWARE TIP OF THE MONTH **   NONE SUMMITTED

** PROGRAM OF THE MONTH **   RAY SMITH

```
0100 REM By Ray Smith, BTI CSS X536
0110 REM    Compares two vesions of a prosram to spot alterations.
0120 REM Both versions must first be DLIisted into text files.  Each
0130 REM prosram line is compared with the other versions'.  Those
0140 REM that don't match are printed to the terminal.  They are also
0150 REM re-formatted, if necessary, and printed to a COMmand file.
0160 REM    Afterward, execution of the command file causes the
0170 REM chanses to be installed in the orsinial version.  This is
0180 REM useful for repetitive software updates.
0190 REM    It's also useful for finding the line you chansed that
0200 REM caused the orisinal version to stop workins.
0210 REM
1800 REM -------------------------------------------------------------
2000 DIM A$[254],B$[254],#1[16],#2[16],#3[16]
2100 DIM N$[30],X$[30],Y$[30],Z$[254]
2250 REM
2300 INPUT "What is the name of the orisinal version's file?    ",X$
2310 PRINT
2320 INPUT "And what is the name of the altered version's file? ",Y$
2400 FILE #1;X$
2500 FILE #2;Y$
2600 FILE #3,2;"DIFFERENCE"
2700 ON END #1 THEN 6000
2800 ON END #2 THEN 7000
3000 REM----------------------------------------------------------
3020 READ #1;A$
3040 READ #2;B$
3060 N$="GET"
3080 N$[4]=A$[6]
3100 PRINT #3;N$
3120 PRINT CHR$(12);N$;CHR$(10)
3140 REM
3500 REM----------MAIN LOOP------------
3520 READ #1;Z$
3540 GOSUB 9000
3560 A$=Z$
3580 READ #2;Z$
3600 GOSUB 9000
3620 B$=Z$
3640 IF A$=B$ THEN 3520
4000 REM-------MISCOMPARE. IS IT BECAUSE OF ADDED OR DELETED LINES?----
4020 PRINT X$;":",A$
4040 PRINT Y$;":",B$
4060 A=VAL(A$[1:4])
4080 B=VAL(B$[1:4])
4100 IF A#B THEN 4220
4120 PRINT #3;B$
4140 PRINT "Chansins ORIGINAL line ";A;"to match ALTERED"
4160 PRINT
4180 GOTO 3520
```

```
4200 REM
4220 IF A>B THEN 5500
5000 REM--- HIGHER LINE NUMBER IN ALTERED. LINE(S) WERE DELETED.---
5020 PRINT "DELETING line";A;"from ORIGINAL"
5040 PRINT
5060 PRINT #3;A$[1;4]
5080 IF TYP(1)#3 THEN 5180
5100 PRINT "last line of ";X$;". Adding to";Y$;":"
5120 PRINT B$
5140 PRINT
5160 PRINT #3;B$
5180 READ #1;Z$
5200 GOSUB 8000
5220 A$=Z$
5240 GOTO 3840
5260 REM
5500 REM----LOWER LINE NUMBER IN ALTERED VERSION. IT IS AN ADDED LINE -
5520 PRINT "Adding line";B;"to Original"
5540 PRINT
5560 PRINT #3;B$
5580 READ #2;Z$
5600 GOSUB 8000
5620 B$=Z$
5640 GOTO 3840
5660 REM
5680 REM ---- END OF ORGINAL FILE, BUT ALTERED MAY BE LONGER ----
6000 PRINT "END of ORGINAL program reached...";CHR$(10)
6200 IF TYP(2)#3 THEN PRINT "Adding lines to ";X$;"..."
6220 READ #2;Z$
6240 GOSUB 8000
6260 B$=Z$
6280 PRINT TAB(5);B$
6300 PRINT #3;B$
6320 GOTO 6220
6340 REM
7000 REM ---- END OF ALTERED FILE, SO SHOW THE DIFFERENCES ----
7100 PRINT "End of ALTERED program...",CHR$(10)
7200 N$[1;3]="KIL"
7300 PRINT #3;N$,"SAV", END
7400 PRINT #3; END
7500 ON END #3 THEN 8400
7600 READ #3,1
7700 IF TYP(3)=3 THEN END
7800 PRINT "Here are the contents of the DIFFERENCE COMfile..."
7900 PRINT
8000 READ #3;A$
8100 PRINT A$
8200 GOTO 8000
8300 REM
8400 REM ---- END OF DIFFERENCE
8500 PRINT CHR$(10);"END of DIFFERENCE file...";CHR$(12)
8600 END
9000 REM---PROGRAMS TRC'D FROM THE 8000 WILL HAVE TWO SPACES FOLLOWING
9020 REM THE LINE NUMBER. PROGRAMS DLI-STED FROM THE 5000 HAVE ONE
9040 REM LEADING SPACE AND ONE SPACE FOLLOWING THE LINE NUMBER.  THIS
9060 REM SUBROUTINE RESOLVES THE ARTIFICIAL DIFFERENCES, IF ANY -----
9080 REM
```

```
8100 IF Z$[1:1]=" " THEN Z$=Z$[2]
8200 IF Z$[5:6]="  " THEN Z$[6]=Z$[7]
9300 REM STRIP OFF TRAILING SPACES AND NULLS
9400 N=ASC(Z$[LEN(Z$)])
9500 IF N#0 AND N#32 THEN RETURN
9700 Z$=Z$[1:LEN(Z$)-1]
9800 GOTO 9400
9999 END
```

** PROGRAM OF THE MONTH (8000) ** from Steven R. Sowder

The enclosed listing is a procedure for PASCAL on the BTI 8000. It
allows the programmer to accept a single character as input without
the necessity of entering the return. It is useful in those special
cases where the return key gets in the way. By looping across the
function call all data can be input to a program without ever touching
the return key.

```
 PROCEDURE GET CHARACTER(VAR CH : CHAR);
 (* ESTABLISH SINGLE CHARACTER INPUT - KEYBOARD ONLY*)
 (* RANDY OXENTENKO - SOUTHWESTERN ADVENTIST COLLEGE *)
 (* JAN 6, 1983 *)
    TYPE
        STRTYPE = STRING(32);
        STRPTR = ^STRTYPE;
    VAR
        RRO,RR1,RR2,RR3 : INTEGER;
        PTR : STRPTR;
        X : INTEGER;
    BEGIN
    NEW(PTR);
    FOR X := 1 TO 32 DO PTR^[X] := CHR(255);
    RRO := 16#11B;
    RR1 := ORD(PTR) + 1;
    FREQ(RRO,RR1,RR2,RR3,2); (* SET UP TERMINATING CHARACTERS *)
    RRO := 16#11A;
    RR1 := 3;
    FREQ(RRO,RR1,RR2,RR3,2); (* ESTABLISH ALL KEYS AS TERMINATORS *)
    PTR^ := ' ';
    RRO := 16#30;
    RR1 := 1;
    RR2 := ORD(PTR) + 1;
    FREQ(RRO,RR1,RR2,RR3,2); (* READLN - GET THE CHARACTER *)
    IF RRO<0 THEN
        BEGIN
        WRITELN('ERROR IN ATTEMPT TO GET INPUT');
        CH := CHR(0);
        END
    ELSE
        CH := CHR(RR2);
    DISPOSE(PTR);
    RRO := 16#11A;
    RR1 := 0;
    FREQ(RRO,RR1,RR2,RR3,2); (* REESTABLISH CR AS THE ONLY TERMINATOR *)
    END;
```

If those of you who have 8000 programs to share will send them in,
we will do our best to pass them on. Thanks in advance for your efforts.

** PROGRAM ADDENDUM ** from John A. Johnson

Last month Chris Buver gave us two programs to better track our systems.
After showing these programs to Barbara at Computrol, Inc., she said
she still needed a way to look one place for and account number instead
of every volume's Index. Well using Chris' DISKSPACE Program and
the following Barbara can now do Just that (Account's by Alpha).

```
ACCTALPHA
0010 COM A$[16],B[54],P$[16],L
0020 DIM #1[12],A[64],C[500,2]
0030 MAT C=ZER
0040 X=C=C1=C2=J1=0
0050 REM THIS IS FOR THE NUMBER OF VOLUMES ACROSS
0060 C3=6
0070 FILE #1,1;"RESOURCE"
0080 X=X+1
0090 ON END #1 THEN 210
0100 READ #1,X
0110 MAT READ #1;A
0120   FOR I=10 TO 53
0130   IF NOT A[I] THEN 180
0140   C=C+1
0150   C[C,1]=X
0160   C[C,2]=A[I]
0170   NEXT I
0180 GOTO 80
0190 IMAGE # A,ZZZ,XX,DD
0200 IMAGE # "ACCT VOL    "
0210 MAT C=SRT(2)
0220   FOR I=1 TO C3
0230   PRINT USING 200
0240   NEXT I
0250 PRINT CHR$(10)
0260   FOR I=1 TO 480
0270   IF NOT C[I,1] THEN 290
0280   C2=C2+1
0290   NEXT I
0300 C2=INT(C2/C3)+1
0310   FOR J=1 TO 480
0320   I=J
0330   IF NOT C[I,1] THEN 420
0340   IF NOT J1 THEN J1=J
0350   IF J >= J1+C2 THEN 480
0360   I=I-C2
0370     FOR K=1 TO C3
0380     I=I+C2
0390     IF I <= 480 THEN GOSUB 440
0400     NEXT K
0410   PRINT
0420   NEXT J
0430 GOTO 480
0440 C1=INT(C[I,2]/1000)
0450 PRINT USING "A",I$;CHR$(C1+64)
0460 PRINT USING 190;I$,C[I,2]-C1*1000,C[I,1]
0470 PRINT "   ";
0480 RETURN
0490 END
```

** THIS MONTH'S CHALLENGE **

Recently while talking to John Loewen of Kaprielian Bros., we realized that many of us have the same need. This being the need for large block letters which can be used for bold printing.

Since many printers are not equiped with this feature, I decided that this would make a good challenge for this month and maybe even next month. Not only is this a good challenge, but the finished result will produce a viable and productive program for many of us.

To add a little zest to our challenge, if possible try to prompt for the height and width of the characters to be formed.(Maybe fixed in the program). You may have to use arrays, but I don't want to give anything away! Just a tip, if you noticed that UP-TIME, which is printed on the first page is block letters. I print this letter on an LA-34 Dec-writer by selecting 16.5 characters wide and 12 characters per inch. I have also precoded a set of data statements with the locations of all positions at which each letter crosses the page. GOOD LUCK!!

** NOTABLE QUOTES **

Keep away from people who try to belittle your ambitions. Small people always do that, but the really great make you feel that you, too, can become great.   (MARK TWAIN)

You can buy a man's time; you can buy his physical presence at a given place; you can even buy a measured number of his skilled muscular motions per hour. But you can not buy enthusiasm...you can not buy loyalty...you can not buy the devotion of hearts, minds, or souls. You MUST earn these.   (CLARENCE FRANCIS)

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UP-TIME (T.M.)

The Newsletter for Users of BTI and VIM III Computers

EDITORIAL: TIME TO SAY GOODBYE!

Since December 1983, I have been your exchanger of information to fellow computer shops. I hope in some way that I have given and passed along information which has or will help you in your day to day operations.

I wish my schedule permitted my continuing this newsletter each month, but this is just not possible. Recently my work load has increased to a point at which I can no longer serve you, our Elite Subscriber Group, in a manner in which you deserve.

It has been my pleasure to be your editor and coordinator for UP-TIME. With the help of several of you, we have made some changes to improve UP-TIME's general appearance and uniform approach. We have also redefined sections of the letter for specific purposes. I hope these changes have made the newsletter more legible.

DO NOT BE DISMAYED, THE UP-TIME MONTHLY NEWSLETTER WILL BE CONTINUED. Trevor Evans, President of Timesharing Unlimited, Inc., in Nashville, Tn. has offered to continue the UP-TIME Newsletter and put his best efforts behind it. Please give him and his staff all the support you can, because this newsletter really does deserve the best thoughts behind it. You'll only reap what you sow.

I want to thank many of you who have contributed to the newsletter and I want the others to know that it's because of you that there is an UP-TIME. It takes a special person who is busy, but puts forth the effort to contribute as often as possible. My hats off to you. THANKS.

** WELCOME NEW SUBSCRIBERS **

I would like to have several new subscribers to present to you each month, but I guess the word about UP-TIME just hasn't gotten around. In an effort to help Timesharing Unlimited, Inc. get a better circulation, try to send in the name and address of one potential subscriber.

** H A R D W A R E   C L A S S I F I E D S **

1. BTI-5000, 64K, 2-DM880 Disk Drives, 16 Ports, Magnetic Cartridge Drive. $15,000.00. Call Harold Raphael at Trail Blazer Systems. Telephone 415/858-2800. EXP. 7-18

2. BTI-4000, 2-49 MEG AMPEX Disk Drives, 32k, 32 ports, 4 yrs old. Best offer. 2-COMDATA MODEMS series 330. Call 203/637-8484. EXP. 7-18

3. BTI-4000, 4-7.5 MEG DIABLO, 1-2.5 MEG removable DIABLO, 8-disk pack, 16-Ports, 4-Crt's, 1-60 CPS LA36. Call Gene Butler at 505/982-5565. Presbyterian Medical Services. EXP.10-18

4. (2) Inmac Telecommunications Line Drivers, 300 to 4800 BAUD depending on distance from Host System. RS232C Hook-up. Best offer over $100. Call at Computrol, Inc. 804/252-7041.

5. BTI-4000 - was used on Reynolds & Reynolds VIM III system. Will sell complete or individual parts (Falcon Drives). One Texas Instruments 742 Terminal. Make offer. Call Bob Rosenberg, 513/541-3300. EXP. 7-18

6. HARDWARE WANTED: USED OKI-DATA 60 MB DISK DRIVE for use with a BTI-5000. Call Larry Chapman, Hendry Corporation, 813/831-1211 EXT. 53. EXP. 7-18

7. BTI-5000, 64k, 2-60 MEG removable disks, 1 Cartridge tape drive. Cost - $67,875.00. Asking $25,500.00. Empire Lease Co., Spokane, Wa. Phone - 509/747-3085. EXP. 9-15

8. 8 Ports for a BTI-5000 6 - Disk packs 65 MEG. each for BTI-5000. Asking for best offer by July 15, 1984. If interested call Computer AWARENESS AT 804/255-8838. Ask for Earl or mail offers to: Computer Awareness 708 S. Ridgewood Ave. Daytona Bch, Fl. 32014

** S O F T W A R E   A D V E R T I S I N G **

2. SDA - ONLINE SCREEN DESIGN AIDE. Allows BTI users to design, add, insert, change, and delete fields. List SCREEN ATTRIBUTES on the CRT or Printer for hard copy documentation. This System includes an interface module for your programs. Used on Lear Seigler, Tele-video, and Hazeltine terminals. Call John Johnson. 804/761-8402.

3. RECOMS (Real Estate Computerized On-Line Matching System) - Enables BTI System Users to search, match, and list real estate and prospec-tive buyers. Additional features: * Message System * Comparitive Price Analysis * Investment Programs * Financial Spread Sheet * Documentation * Trend Analysis *. Runs under MARS (Product of GRW Systems, Inc.) $5,000.00 without MARS License. Installment payment plan available. Contact D.J. Webb Timesharing Unlimited, Inc. 615/242-4477, 240 Great Circle Road, Suite 326, Nashville, TN. 37228

*** Advertising rates are $36.00 for three issues of Uptime ***

As a SPECIAL THANKS all ads have been extended by TWO issues.

Please mail payment with Ad/renewal - we wish not to bill.

** HARDWARE TIP OF THE MONTH **   NONE SUMMITTED
** SOFTWARE TIP OF THE MONTH **   NONE SUMMITTED

** PROGRAM OF THE MONTH **   CSS

```
TITLEPAGE
0001 REM WEDNESDAY, FEB 23, 1984
0010 REM
0020 REM --------------------------------------------------------------
0030 REM
0040 REM        Produces a large-lettered, boldface title page (or sign,
0050 REM or whatever).  Page is standard 8.5 X 11".   Maximum 5 lines
0060 REM of 10 characters each, all caps, plus one centered comment
0070 REM line, normal proportions, at page bottom.   Page may be
0080 REM optionally stored as a BASIC-X file.
0090 REM        Boldface characters are composed of 5 X 7 matrix. Matrices
0100 REM are assembled into a larger matrix, which is scanned left
0110 REM to right, top to bottom.  If a given cell contains a "1"
0120 REM a character is printed in the concurrent position on the page
0130 REM        Lines are pre-filled with five spaces to avoid ringbinder
0140 REM punch-holes.  Each scan line is printed three times with three
0150 REM different characters, to produce the darkest possible image.
0160 REM Boldface alphas are displayed upper case only.
0170 REM
0180 REM   By Ray Smith and Dave Ratz, BTI CSS (408) 733-1122 X536
0190 REM --------------------------------------------------------------
0200 REM ROOM SERVICE
0210 DIM A$[35],B$[10],C$[72],F$[20],M$[254],N$[3]
0220 DIM V$[10],W$[10],X$[10],Y$[10],Z$[10]
0230 DIM Y[7,72]
0240 DIM #1[32]
0300 REM OVERPRINT CHARACTERS
0310 N$="+@#"
0320 REM SAVE CARRIAGE WIDTH, SET IT TO ZERO (NO CR'S)
0330 C=PRT(-4)
0340 C1=PRT(40000)
0350 REM
0500 REM ---- MAIN DRIVER MODULE ----
0520 REM
0540 REM GET OUTPUT FILENAME, IF ANY
0560 GOSUB 1000
0580 REM SET UP TARGET FILE FOR USER, IF ONE IS REQUESTED AND NEEDED
0600 IF LEN(F$) THEN GOSUB 3000
0620 REM GET USER PARAMETERS, SOURCE TEXT
0640 GOSUB 2000
0660 REM NAME THE PAGE
0670 GOSUB 4000
0680 REM ALL DONE, DO IT AGAIN
0700 GOTO 500
0720 REM
1000 REM ---- GET USER FILENAME ----
1020 REM
1040 F$=""
1060 INPUT "Targetfile name? (Enter <CR> for NONE) : ",F$
1080 PRINT
```

```
1100 RETURN
1120 REM
2000 REM ---- GET SOURCE TEXT ----
2020 PRINT "Enter <CR> as first line to EXIT.  Maximum is TEN characters"
2040 PRINT "per line..."
2060 PRINT
2080 INPUT "First line?:",V$
2100 REM IF NO FIRST LINE, RESET CARRIAGE WIDTH AND QUIT
2120 IF LEN(V$) THEN 2200
2140 C1=PRT(40000+C)
2160 END
2180 REM
2200 INPUT "Second?    :",W$
2220 INPUT "Third?     :",X$
2240 INPUT "Fourth?    :",Y$
2260 INPUT "Last line? :",Z$
2280 PRINT
2300 PRINT "Normal-sized (maximum 72 characters) line for bottom of page:"
2320 INPUT C$
2340 RETURN
3000 REM --- IF WORKFILE DOESN'T EXIST, MAKE ONE ---
3020 REM  AND IF IT DOES, CLOSE IT AND THEN MAKE ONE
3040 FILE #1,4;F$
3060 IF NOT TYP(-1) THEN 3160
3080 PRINT F$;" already exist...";
3100 FILE #1,4;""
3120 PRINT "Closing...";
3140 FILE #1,8;F$
3160 REM CREATE, LINK
3200 FILE #37,7;F$
3240 FILE #1,4;F$
3260 IF TYP(-1) THEN 3340
3280 PRINT "ERROR--Unable to link workfile: ";F$
3300 RETURN 1000
3320 REM
3340 PRINT F$" is ready."
3360 RETURN
3380 REM
4000 REM -------- ASSEMBLE THE PAGE ----------------------------------
4020 REM FORMFEED TO START
4040 M$=""
4060 PRINT USING "A",M$;CHR$(12)
4080 IF LEN(F$) THEN PRINT #1;M$
4100 PRINT M$
4120 M$=""
4500 REM -----
4520 REM L IS FOR LINE NUMBER
4540   FOR L=0 TO 4
4560   MAT Y=ZER
4580   IF L=0 THEN B$=V$
4600   IF L=1 THEN B$=W$
4620   IF L=2 THEN B$=X$
4640   IF L=3 THEN B$=Y$
4660   IF L=4 THEN B$=Z$
5000   REM IF THE SOURCE LINE IS BLANK, FILL WITH 5 CARRIAGE RETURNS
5020   B=LEN(B$)
5040   IF B THEN 5500
5060    FOR L1=1 TO 7
```

```
5080    IF LEN(F$) THEN PRINT #1;""
5100    PRINT
5120    NEXT L1
5140   GOTO 8600
5160   REM
5500   REM CHOP OFF LEADING SPACES FROM SOURCE TEXT
5520   IF B$[1:1]#" " THEN 5620
5540   B$=B$[2]
5560   B=B-1
5580   GOTO 5520
5600   REM
5620   REM AND TRAILING SPACES
5640    FOR V1=B TO 2 STEP -1
5660    IF B$[B:B]#" " THEN 6000
5680    B$=B$[1:B1-1]
5700    B=B-1
5720    NEXT V1
6000   REM  FIGURE OFFSET TO CENTER THE BOLDFACE LINE
6020   M1=72-(7*B)
6040   M1=INT(M1/2)
6060    FOR V=1 TO B
6080    IF B$[V:V]=" " THEN 7520
6100    REM V IS CHARACTER POSITION IN INPUT STRING
6120    M=ASC(B$[V])
6500   REM -- FILTER OUT BOBUS CHARACTERS
6520    IF NOT ((M<48 OR M>123) OR (M>57 AND M<65) OR (M>90 AND M<97))
                                                THEN 7000
6540    PRINT "ILLEGAL CHARACTER ( '";B$[V:V];"' ) ENCOUNTERED!";CHR$(7)
6560    RETURN 500
6980   REM  PICK THE RIGHT STARTPOINT FOR DATA READ
7000    M=M-47
7020    RESTORE
7040    IF M>17 THEN RESTORE 8620
7060    IF M>17 THEN M=M-17
7080    REM ADJUST LOW TO UPPER CASE
7100    IF M>26 THEN M=M-32
7200    REM -- SELECT PROPER STRING TEMPLATE TO MATCH THIS LETTER
7220     FOR V1=1 TO M
7240     READ A$
7260     NEXT V1
7500    REM
7520     FOR W=1 TO 7
7540      FOR X=1 TO 5
7560      A=M1+(V*7)-7+X
7580      IF B$[V:V]#" " THEN 7640
7600      Y[W,A]=0
7620      GOTO 7680
7640      W1=W*5-5+X
7660      Y[W,A]=VAL(A$[W1:W1])
7680      NEXT X
7700     NEXT W
7720    NEXT V
8000   REM ---- SEPARATE VERTICALLY THE BOLDFACE LINES ----
8020    FOR G=1 TO 3
8040    IF LEN(F$) THEN PRINT #1;""
8060    PRINT
8080    NEXT G
8200    REM
```

```
8220    FOR W=1 TO 7
8240     FOR Z=1 TO 3
8260     M$[LEN(M$)+1]="      "
8280      FOR X=1 TO 72
8300      IF NOT Y[W,X] THEN 8360
8320      M$[LEN(M$)+1]=N$[Z:Z]
8340      GOTO 8380
8360      M$[LEN(M$)+1]=" "
8380      NEXT X
8400     IF Z<3 THEN PRINT USING "A",M$[LEN(M$)+1];CHR$(13)
8420     NEXT Z
8440     REM
8500     REM ---- THIS BOLDFACE LINE IS ASSEMBLED ---- PRINT IT
8520     PRINT M$
8540     IF LEN(F$) THEN PRINT #1;M$
8560     M$=""
8580     NEXT W
8600    NEXT L
8620 IF NOT LEN(C$) THEN 9060
8640    FOR Q=1 TO 3
8660    IF LEN(F$) THEN PRINT #1;""
8680    PRINT
8700    NEXT Q
8720 M$=""
8740 REM
9000 REM  CENTER THE NORMAL-SIZE BOTTOM LINE TOO
9020   FOR Q=1 TO INT(5+(72-LEN(C$))/2)
9040   M$[Q]=" "
9060   NEXT Q
9080 M$[LEN(M$)+1]=C$
9100 REM TACK ON A FORM FEED
9120 PRINT USING "A",M$[LEN(M$)+1];CHR$(12)
9140 IF LEN(F$) THEN PRINT #1;M$
9160 PRINT M$
9180 RETURN
9200 REM
8500 REM ---- DATA STATEMENTS FOR TITLE ----
8510 REM NUMBERS, 0-9
8520 DATA "01110100011001110101110011000101110"
8530 DATA "00100011000010000100001000010001110"
8540 DATA "01110100010000100010001000100011111"
8550 DATA "01110100010000100110000011000101110"
8560 DATA "00010001100101010010111110001000010"
8570 DATA "11111100001000000110000011000101110"
8580 DATA "00001000100010001100100011000101110"
8590 DATA "11111000010001000100010001000010000"
8600 DATA "01110100011000101110100011000101110"
8610 DATA "01110100011000100110001000100010000"
8620 REM LETTERS, A-Z
8630 DATA "00100010101000111111100011000110001"
8640 DATA "11110100011000111110100011000111110"
8650 DATA "01110100011000010000100001000101110"
8660 DATA "11110100011000110001100011000111110"
8670 DATA "11111100001000011100100001000011111"
8680 DATA "11111100001000011100100001000010000"
8690 DATA "01110100011000010111100011000101110"
8700 DATA "10001100011000111111100011000110001"
8710 DATA "01110001000010000100001000010001110"
```

```
8720 DATA "111111000010000100001000010100100110 0"
8730 DATA "100011001010100110001010010010 10001"
8740 DATA "100001000010000100001000010000 11111"
8750 DATA "100011101110101101011000110001 10001"
8760 DATA "100011100110101101011010110011 10001"
8770 DATA "011101000110001100011000110001 01110"
8780 DATA "111101000110001111101000010000 10000"
8780 DATA "011001001010010100101011010010 01101"
8800 DATA "111101000110001111101010010010 10001"
8810 DATA "011101000110000011100000110001 01110"
8820 DATA "111110010000100001000010000100 00100"
8830 DATA "100011000110001100011000110001 01110"
8840 DATA "100011000110001010100101001010 00100"
8850 DATA "100011000110001101011010111011 10001"
8860 DATA "100011000101010001000101010001 10001"
8870 DATA "100011000101010001000010000100 00100"
8880 DATA "111110000100010001000100010000 11111"
8890 REM ----------------------------------------
8900 END
```


THE ABOVE WAS PRINTED AT 8 LINES/INCH AND 10 CHARACTERS/INCH.

UP-TIME

(T.M.)

TABLE OF CONTENTS

<>

NEW OFFER...PROGRAM-OF-THE-MONTHS !!

UP-TIME, along with TUI Computer Services, has started the ball rolling in a new direction. We are working to gather programs submitted (past and future), to build a magnetic tape cartridge program library for use by UP-TIME readers.

If you wish to submit a "Program-of-the-Month", please do so using a magnetic tape cartridge. Cartridges will be returned provided your name and address is attached to the cartridge.

IF YOU PLAN TO USE OR ADD TO THE TAPE LIBRARY IN THE FUTURE...

* Please keep account# Z998 open for such program transfers to be stored on your system.

* Submitted programs should use line #1 for a remark statement giving the title of the program

* Additional comment lines should indicate the date, author of the program, the company submitting the program, phone# for contact if possible, and reference to what volume of UP-TIME the program's description and operating instructions.

* Write a short overview to be printed in UP-TIME. Let readers know about the program you submitted (i.e. what it does, it's suggested use, approximate length, etc.)

Of course, if you do not have a magnetic cartridge tape unit available on your system, please feel free to submit your programs on paper. TUI personnel will then input the program into UP-TIME's tape library.

If you wish to order the current UP-TIME TAPE LIBRARY, send UP-TIME your magnetic tape cartridge along with a check for $10.00. Upon receipt, account Z998 will be copied to your tape using tracks 1 and 2 (2 copies) and will be mailed back to you via 1st class mail, unless instructed otherwise.

This service should be in full swing around December of this year. We will keep you posted on the progress of this new project.

Our thanks to those who have already contributed! This idea should help us all from re-inventing the wheel!

Appearing on your mailing label for UP-TIME at the top is your subscription expiration date.

We are new with the UP-TIME accounting, so be sure to verify this date with your last payment to UP-TIME. Inform us if your expiration date is incorrect. If your subscription is about to expire, please fill out the enclosed form at the end of this letter and enclose your check in order that your subscription will not be interrupted. Sorry, but we do not issue invoices for subscriptions or ads.

<>

***** WELCOME NEW SUBSCRIBERS *****

Earnest L. Philips - Community Computer Corp. - Philadelphia, PA

August issue - a total of 39 complementary issues were mailed.

If you know of someone that might be interested in receiving a complementary issue of UP-TIME, please fill out the form at the end of this subscription and return it to UP-TIME!

<>

CLARIFICATION FROM LAST MONTH'S ISSUE

Last month, we printed a "tip" under the article titled "DEI TAPE UNITS". Tom Beauchamp, with WKRN Television (Channel 2) in Nashville, brought to UP-TIME's attention the necessity of following the manufacturer's recommendations on cleaning solvents for equipment such as VCRs. In his line of work, he has found that 91% Isopropyl Alchohol can damage some equipment and will actually melt pucks (heads or capstans). Thank you, Tom, for your input!
<>

***** **WHY DID MY DRIVE BELT BREAK ?** *****
by Teresa Kreh

This article is being presented to you based on the writer's recent experience with a drive belt failure on the Ampex 49 mgb Disk Drive. Many of the points brought out can also be used as common knowledge for belt problems on other types of computer drives, or even small engine machines used outside the office.

If you walked up to a computer drive that quit spinning...what should you do? Answer...visually inspect the equipment to see if you might be able to determine the reason for the malfunction, consult your BTI Manual, and/or contact BTI Sunnyvale Field Service.

Last month, I had such a problem confront me first thing on Monday morning! After observing the toggle switch on top of the drive in the "On" position, and after removing the front lower skin from the drive to inspect the inner workings, I noticed a frayed black belt hanging from the top of the pulley. I turned off the drive.

To correct a belt break, first check to see if your office has a spare drive belt on hand. If not, you will need to contact BTI Field Service to have a replacement belt sent. Try the following steps:

* First, turn the power switch off in the back lower part of the drive...for your safety.

* Carefully remove the frayed belt.

* Carefully...slide the replacement belt through the spindle switch, being sure not to damage or apply pressure to the switch.

* Use either a long screwdriver or tire tool to pry the top portion of the drive motor to the right.

* Slide the belt onto the large round pulley located on top of the motor.

* Slide the opposite end of the belt onto the smaller round pulley to your right.

* Slowly release the tool in order that the motor can return back into its original position.

* Slowly rotate the belt and try to adjust it on the pulleys as straight as possible.

* Turn on the power switch in back of the drive.

* Turn on the top switch to spin up the drive.

When you turn the drive on after replacing the belt, the new belt will probably ride a little upward or downward to adjust itself. Monitor the belt for at lease 10 minutes.

BELT TIPS:

*** If any part of the belt is not making contact with the pulley (sticks up or hangs below pulley), inform BTI Field Service next time you schedule a maintenance visit. This could be an indication that the pulley is wearing out.

*** If you are having belt breaks frequently,inspect the pulley next time your drive is powered down. Run your finger vertically along the side of the pulley on which the belt makes contact. Are there scratches or waves worn into the pulley not making it perfectly round? This is usually indication of a worn pulley.

*** Watch for any indication of a possible fraying in the belts you are using.

*** Replace belts annually.

It is nice to note that if you are in need of replacing a pulley, BTI Field Service Engineers can do this for you next time they are in your area. However, if you are performing maintenance yourself, BTI will send you an entire replacement motor with a new pulley attached which is somewhat more expensive. Last month when we had our pulleys replaced, the field engineer finally ended up taking both our drive motors to the local Exxon station to borrow a gear puller. This was a sure way to remove the pulleys without wasting a lot of time!

<>

OKI DISK DRIVE LINE DRAWINGS - By CSS

Ray Smith, with the Customer Software Support Division of BTI has sent UP-TIME several line drawings. These are the ones used by the telephone engineers, with some minor alterations. Part numbers and other extra information has been wiped out.

For the next several issues, UP-TIME will publish one system type per month.
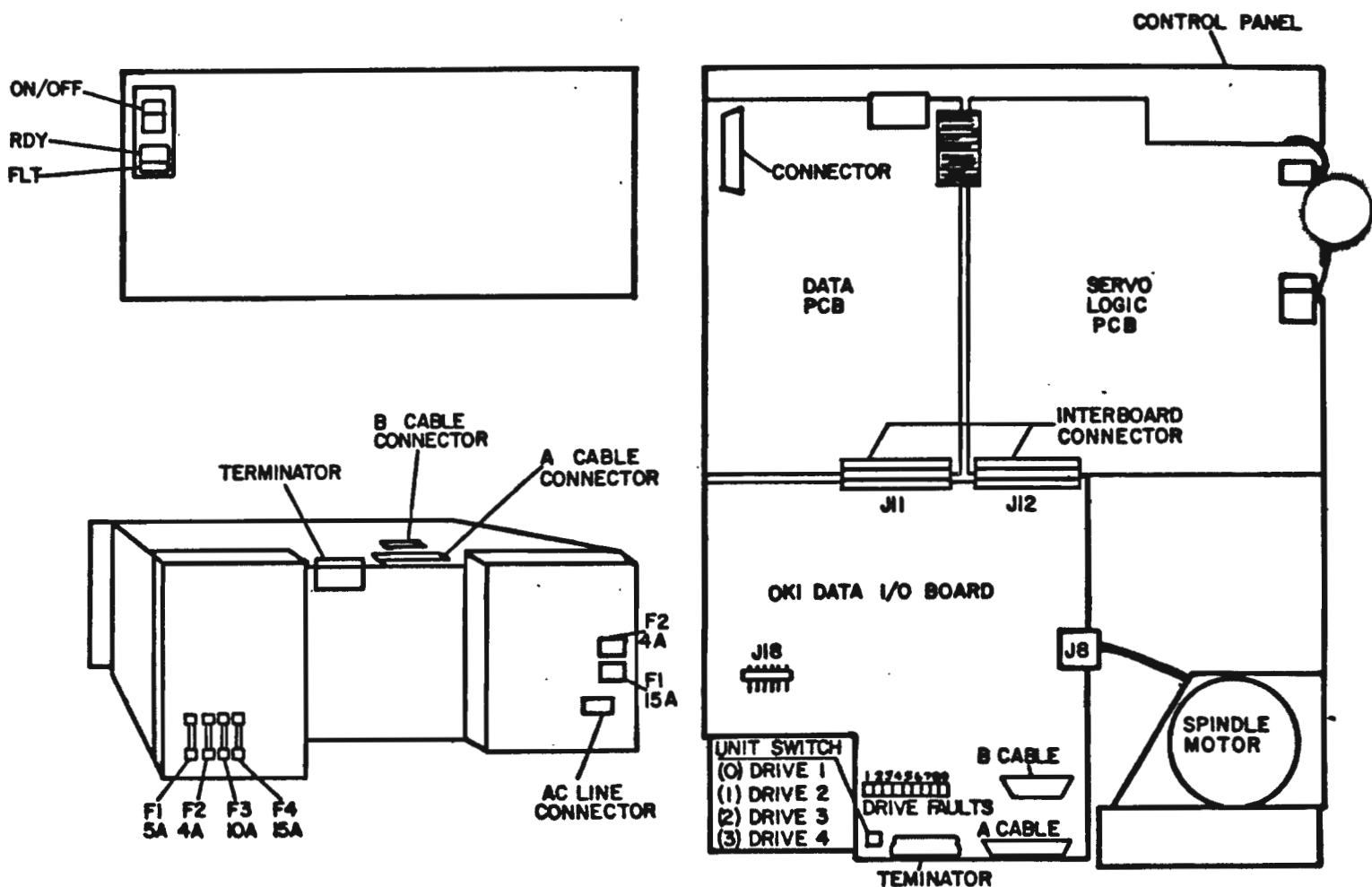
Readers be advised...

Make certain that your system conforms to any given chart BEFORE pulling cables loose. CHECK FIRST. These are the most common types, but there are variations. It might be a good idea to scotch-tape the chart to the backside of your system. That way, everyone in the office will know where to find it when needed.

This month, UP-TIME elected to publish CSS's chart of the OKI DATA Drive used on the BTI 4800 and 5000 systems. This clearly shows the drive belt in a bottom view of the OKI Drive. This month, our feature article deals with replacement of such belts.

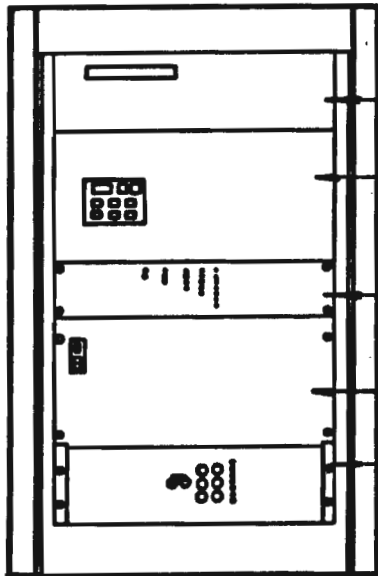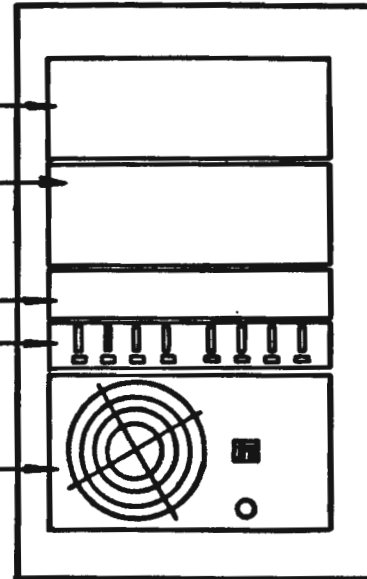**BTI** COMPUTER SYSTEMS   OKI-DATA DISK DRIVE (TOP VIEW)

OKI DATA
DRIVE SYSTEM

SMT

GROUND
STRAPS

RED
STRIPE

CPU

WDC2

A

B

IA

RED
STRIPE

OKI
DRIVE

5A   4A   IOA

FI F2 F3 F4

TERMINATOR

4A — F2

I5A — FI

RED
STRIPE

I5A   I5A

POWER
PLUG

POWER
SUPPLY

REAR VIEW   VIM 3/200
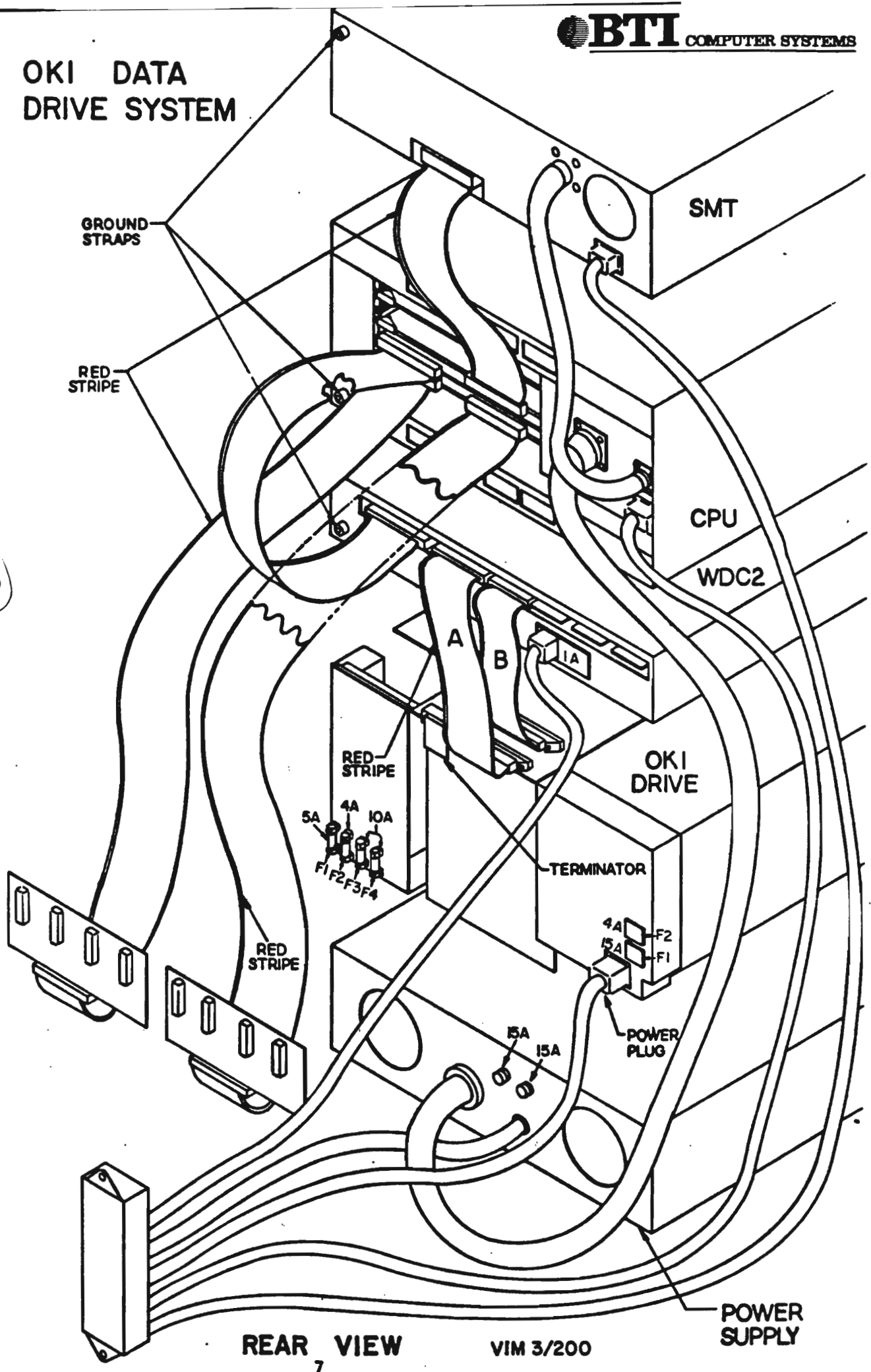
7

OKI SYSTEM CABINET

FRONT VIEW

BACK VIEW

- DRIVE
- CPU
- DISK CONTROLLER
- COM PANEL
- DISK DRIVE
- POWER SUPPLY

OKI-DATA DISK DRIVE
(BOTTOM VIEW)

POWER SUPPLY

SHIPPING SCREW

SPINDLE BRAKE SOLENOID

SPINDLE PULLY AND BRAKE

STATIC STRIP

SHIPPING CLAMP

AC VOLTAGE PLUG

POSITIONER SHIPPING CLAMP MOTOR

DECK CASTING

HEAT SINK FAN

BLACK CONNECTOR

WHITE CONNECTORS

PAPER CLIP

SHIPPING SCREW STORAGE

SHIPPING SCREW

HEAD RESTRAINING SCREW

RESTRAINING SCREW STORAGE

⑧

FIG 5

8
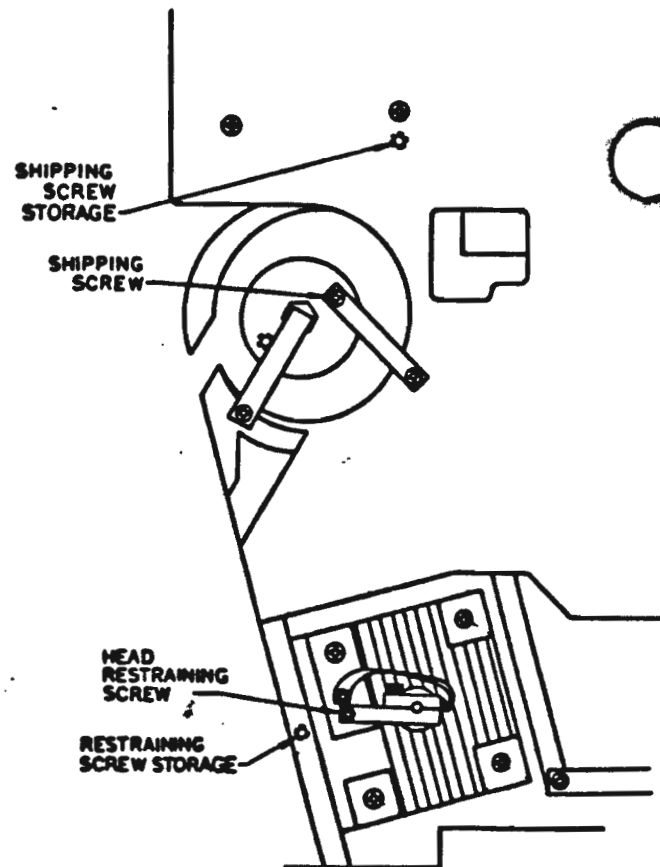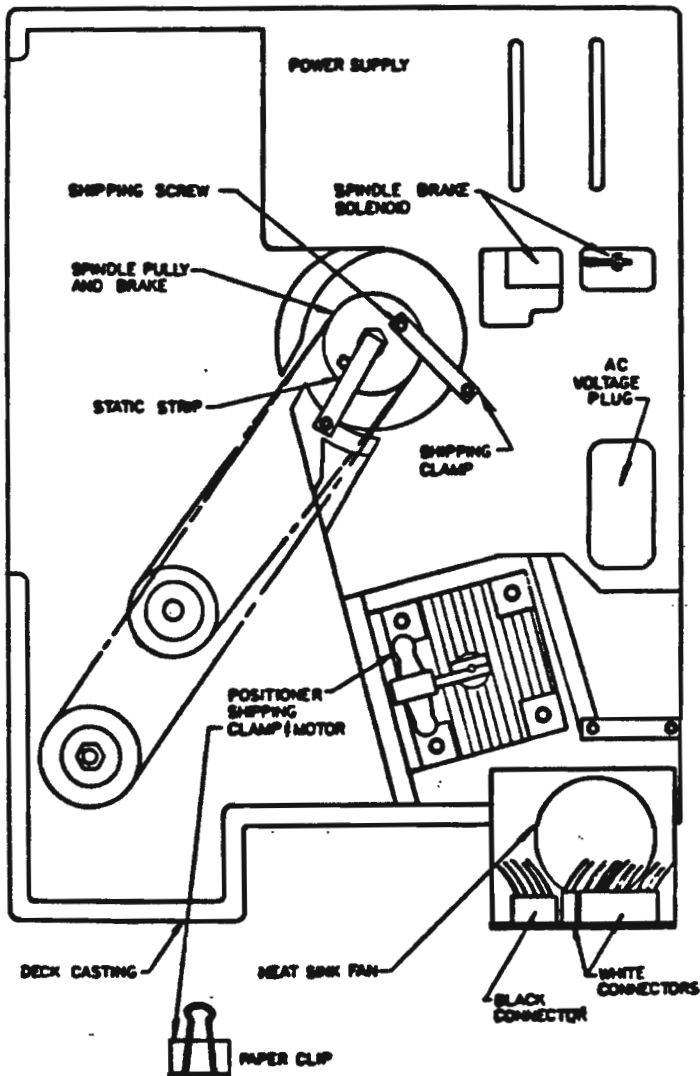
BENCHMARK RESULTS...BTI & OTHERS

The February issue of UP-TIME contained an interesting contribution from Dave Green of Jordan High School. Dave spotted an article in the January issue of Creative Computing which compared 107 different computers. It tested computational accuracy, speed and the randomness of each system's random number generator. David filed his test results on this benchmark program with UP-TIME in an earlier issue.

Since that time, we have received an article from BTI. They not only verified the results from the benchmark program, but have also tested out several other BTI Systems.

The article, test results, and benchmark program from BTI will be reproduced in the October issue of UP-TIME. Also, by special permission, Creative Computing's Benchmark will be reproduced.

<>

***** HARDWARE CLASSIFIEDS *****

1. BTI-4000, 4-7.5 MEG DIABLO 1-2.5 MEG removable DIABLO, 8-disk pack, 16 ports, 4-CRT's, 1-60 CPS LA36. Call Gene Butler at (505) 982-5565. Presbyterian Medical Services. (EXP 10-84)

2. BTI-5000, 64K, 2-60 MEG removable disks, 1 cartridge tape drive. Cost - $67,875.00...ASKING $25,500.00 Empire Lease Co., Spokane, WA Telephone# (509) 747-3085. (EXP 9-84)

3. BTI-5000 with 16 ports and DEI Tape Unit. System available with Ampex 980 80 MB drives. $10,000 per computer plus $2,500.00 per drive. Also, 8 port comm panels @ $950.00 and LA120 Decwriters @ $1,150.00 ea. Call Sheldon Shapiro at TBS (415) 858-2800 (EXP 10-84)

4. BTI 4000: Standard Configuration BTI 4000 with 16 ports, 1-49 MB Drive, 1-DEI Tape Drive, has been under BTI service contract; coming off a lease. Best Reasonable Offer. GRW Systems, 408/745-7720. (11-84)

5. BTI 5000: Standard Configuration BTI 5000 with 8 ports, 1-58 MB OKI Data Drive, 1-DEI Tape Drive. Has been under BTI service contract; coming off a lease. $17,500. GRW Systems, 408/745-7720 (11-84).

***** SOFTWARE ADVERTISING *****

MARS/ASAP/QUICK - GRW Systems, Inc. offers a BASIC-X DBMS (MARS), plus fully integrated accounting and order entry/inventory control packages for the BTI 16 bit (4000/5000/6000) or 32 bit (8000) environments. MARS can operate as a standalone DBMS, or application development tool for your software, or can be used as the foundation for GRW's applications. Phone 408/745-7720, or write GRW Systems, Inc. at 1274 Geneva Drive, Sunnyvale, CA 94089 for additional information on this very high quality family of software. (11-84)

MARS II - 4th Generation DBMS and Application Development Tools for the BTI 8000. Data Dictionary, Report Writer, Screen Generator, Encrypted Files, and many other features are standard. Don't consider applications on the BTI 8000 without considering the 90-95% reduction of programming cost that this product can provide! Development Modules, End User Modules, and Run Time Modules are all available. Call GRW Systems at 408/745-7720 (1274 Geneva Drive, Sunnyvale, CA 94089) for more information on MARS II and/or our applications for the very exciting 4th Generation Relational Environments. (11-84)

RECOMS - REAL ESTATE COMPUTERIZED ON-LINE MATCHING SYSTEM Enables relators to search, match, and list real estate and prospective buyers. Additional features include: Message System, Comparitive Price Analysis, Investment Programs, Financial Spread Sheets, Complete Documentation, and Trend Analysis. Runs under MARS (product of GRW Systems, Inc.) $5,000.00 without MARS License. Installment payment plan available. Contact D.J. Webb @ TUI Computer Services (615) 242-4477.

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NEED SOME ADVERTISING ??
Rates
$36.00 for three issues of UP-TIME (subscriber)
$36.00 per issue for non-subscribers (outside vendors)

<>

HOT GOSSIP

THE BTI 4800 AND 6000 BROCHURES WILL PROBABLY
BE AVAILABLE TO BTI DISTRIBUTORS SEPTEMBER 20th !!!

BTI 6000's WILL BE READY AND FINISHED WITH
TESTING IN LATE OCTOBER !!!

SOURCE: Cannot disclose...

***** BTI CSS SECTION *****

Recently in correspondence with Mr. Ray Smith, customer software support analyst with BTI Computer Systems in Sunnyvale, some of the concepts concerning BTI's participation in UP-TIME and ideas were summed up in the following quoted paragraphs:

"We ask that whatever we send you will not be cut or rearranged without at least verbal approval from the authors. Usually, this approval is just a phone call away.

We ask to be regarded as helpful advisors and NOT as official spokesmen for company policies. We'll be writing on our own time, not BTI's, so we may not be able to meet a deadline. Our job is the resolution of paying-customers' problems, and it must come first.

The material we send you will be without strings attached. That means that you may publish and distribute it as you see fit. However, it also comes without warranties and/or guarantees. If we send you "Program of the Month" for example, we can't be expected to modify or support it for all of our customers."...

"We in Field Service read UP-TIME with great interest. It gives us a valuable perspective on our handiwork. We hope that this channel of communication will result in increased customer satisfaction with our products. We often receive duplicate questions from several customers, in the course of a day's work. We prefer the question-and-answer format, because we think it saves the customers phone charges and saves us valuable man-hours. However, it's your magazine and we are open to any suggestions for change that you might have...

We prefer that questions for the column be submitted in writing to us directly at BTI. In some of the earlier issues the questions were printed first. This meant that we couldn't pick the ones we felt were of most value to all our customers, and that we had to wait for the next issue to respond in any case. Space and time limitations prevent us from answering every question in print."

....

We thank Ray and BTI Field Service for their generous input and support. Here, at UP-TIME, much of the above also applies. Everything we publish in this newsletter is for your general knowledge and only to be taken second to the suggestions and recommendations of BTI. Also, advertised equipment, software, etc. is not necessarily approved by UP-TIME or TUI Computer Services. This newsletter is COMMUNICATION !!!
Use accordingly !! HOW ABOUT THAT FOR A DISCLAIMER !!

<>

The following is an informative list to aid you in getting the maximum life from your cables:

* Aging cables often cannot be detected visually. Hardness and brittleness come with age. Therefore, the older the cables, the more carefully they should be handled. Also, be sure to be careful while working around these cables.

* Do not step on cables, (especially if you wear sharp heels),this could lead to damage of the cable itself and/or pull a connection loose.

* Do not move a computer system that is running satisfactorily or rearrange cables unless absolutely necessary.

* Before outside service engineers (such as telephone people, air conditioning repair people, etc.) visit inside your computer room, take the time to instruct them not to put ladders on cables, or smoke around the computers. This will enhance your uptime considerably.

* If running communication cables for terminals or modems through the ceiling, be sure the cables are not resting directly on or near florescent lights. This can cause electrical distrubances resulting in data transmission errors.

<>

TROUBLESHOOTING ACOUSTICAL COUPLERS

If there are problems in operating the system the following procedure may be used to isolate the problem:

There are three distinct causes of a malfunctioning system.
    1) The coupler may be malfunctioning.
    2) The terminal device may be bad.
    3) The communications channel may be too noisy or out of order.

In order to restore the system to operation, it is necessary to isolate the problem. Check the following:
    1) The half/full-duplex switch is in the proper position.
    2) The telephone handset is securely inserted in the rubber cups.
    3) The power cable and interface cable are securely plugged in.
    4) The telephone handset is in the proper position.
    5) The power switch and the power indicator are on (if the power indicator is not on, check the fuse inside the coupler).
    6) The carrier indicator turns on when you originate a call to your time-shared computer system.

BTI FIELD SERVICE APPRECIATES YOUR HELP

Should your system encounter a problem where you need to contact BTI Field Service, the following chart has information that will be needed by BTI to properly service your equipment.

This chart was prepared by BTI Field Service (CSS) to aid them in trouble-shooting your equipment in a minimal amount of time. It is recommended that you attach a copy of this chart (information filled in...of course) to your BTI Computers. When down-time occurs, anyone in your office should be able to contact BTI with the necessary information.

BTI Field Service has reported to us that a common problem is that many callers do not know their system number.

HARDWARE TIP FROM CSS

Here's a Hardware Tip of the Month: Pin the BTI system number, clearly labeled as such, to the wall next to the system. It's the first thing customers are asked when they call for service. You'd be surprised at how many don't know their number. Repair cannot begin without it.

●**BTI** COMPUTER SYSTEMS

IF I STOP WORKING   (13)

Check to see if a halt number is displayed in lights on the front of the machine.

Make a note of it, as well as the system number below, before calling.

Field Service (24 hours)   (408) 733 - 4840

For other departments   (408) 733 - 1122
 Give an extension, or ask the BTI operator.

Customer Software Support 425, 559, 536, 304
Field Engineer Dispatcher   310
Sales   329, 333
Shipping   455, 456
Receiving   . 322

FIRE DEPARTMENT _____

POLICE _____

SECURITY _____

System Operator _____

Office # _____ Home _____

System Administrator _____

Office # _____ Home _____

System Owner _____

Office # _____ Home _____

_____

_____

BTI SYSTEM NUMBER _____

BTI 6000 SURVEY SHEET

Recently, when the BTI 6000 was announced at the Eastern and Western Regional User's Meetings, Jon Nickerson, vice-president of BTI, explained that some of the additional memory provided in the 6000 was saved for possible future enhancements. BTI is interested in input from its users on what would be beneficial to its 6000 users. Based upon this, Mr. Ransom White of GRW Systems in Sunnyvale, CA, conducted an informal survey and submitted a survey form consisting of approximately 16 items for the 6000 wish list.

In order that UP-TIME might provide BTI with results of this survey, please review the following items carefully and rate each item from 0 to 5.

    0 = No value to you
    3 = Nice to have
    5 = Very important to you

Please return the following survey sheet back to UP-TIME before October 10, 1984. We will tabulate the results and publish them in the October Issue as well as send BTI a formal report of the results. Just like our election process, if you do not vote by returning the following sheets with your views, your wishes will never be heard. As far as we, here at UP-TIME, are concerned, we think this type of team work between BTI and its users is very important.

(14)

SUGGESTIONS FOR BTI 6000 ENHANCEMENTS
(Listed in Random Order)

Rating
 0-5

_____ 1. Allow a larger program size by allocating at least some of the extra memory to larger programs.

Purpose: To give the programmer more power; to eliminate the constant constraint of running out of program space.

_____ 2. Eliminate the logical volume constraint. A multiplier of 2 or 4 in size would help, but a modification to allow files as large as the disk drive would be even better.

Purpose: To reduce or eliminate cross disk expansions; to speed up access on multiple volume file; to reduce maintenance costs of BTI 6000 installations.

_____ 3. Incorporate the "type-ahead" feature that is used on the BTI 8000.

        Purpose: To increase user throughput by allowing input operators to type their answers even before the system provides the questions.

_____ 4. Provide larger input/output buffers than the 300 character per port buffers now provided.

        Purpose: At 9600 BAUD, the 300 character output buffer is dumped in less than 1/3 second, resulting in frequent CPU demand that could be partially relieved if more data could be dumped when the CPU has the opportunity to do so.

_____ 5. Provide an EXEcute command, which combines GET and RUN.

        Purpose: To make life simplier for the End User. The "GET" command is still available for programmers, but is not needed by End Users.

_____ 6. Provide multiple languages as available on the 8000 (i.e. PASCAL, COBOL, FORTRAN).

        Purpose: To improve compatibility between the two lines, and to provide more tools for software houses.

_____ 7. Allow more than 32 ports.

        Purpose: Expansion of capabilities of the product line, giving OEM's more tools to fill the gap between the 6000 and 8000 product line.

_____ 8. Lower cost of the product.

        Purpose: An obvious help to all OEM's and end users.

_____ 9. Lower cost of service.

        Purpose: Same as item above.

_____ 10. Expand the number of string operations permitted on one line of code. Currently, only one string assignment or comparison is allowed.

        Purpose: Improved readability and ease of coding.

_____ 11. Allow more characters for variable names.

        Purpose: To make programs more readable.

_____ 12. Allow strings to have names like HP Basic (A1$, A2$, etc.).

   Purpose: To increase the available number of strings from 26 to 260.

_____ 13. Implement some of the features of the 8000's XI mode, such as breakpoints, singlestepping, and listing code within the program currently being executed.

   Purpose: These are <u>invaluable</u> tools for the 8000 applications programmer; they would be very valuable to 6000 users as well.

_____ 14. String division

   Purpose: No explanation required

_____ 15. Eighth data bit on a port selectable basis.

   Purpose: If the eighth data bit was able to be transmitted, the BTI would be able to take care of more peripherial devices and their enhancements such as the graphics capability on the Okidata Micro-Line Printers and character generators at television stations!

_____ 16. Make the system capable of operating in a normal office environment versus the controlled environment now required.

   Purpose: Reduce "computer room" costs.

UP-TIME

(T.M.)

A PUBLICATION FOR USERS OF BTI 4000, 4800, 5000, 6000, & 8000 COMPUTERS

```
#####################################################
#                                                   #
#                                                   #
#              TABLE OF CONTENTS                    #
#                                                   #
#                                                   #
#                                            Page   #
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#                                                   #
#####################################################
```

Donald Drennen - California Computer Timesharing
Robert Giuli - Giuli Microprocessing, Inc.
Office Manager - Papagni Vineyards
Timothy Keck - California Western School of Law
Earl Hendricks - Professional Online Systems
Steven Sowder - SW Adventist College

If you know of someone that might be interested in receiving a complementary issue of UP-TIME, please fill out the form at the end of this subscription with their name and address.

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(2)

MICRO BLOOPERS

The funny little man with the bowler hat and Charlie Chaplin mustache makes it look so easy. The funny little man is in for quite an education.

New users who approach micros with such exuberance are sometimes surprised. For example:

. The person who put two diskettes in the same drive because the instructions called for a double-density disk.

. The person who took scissors and cut out the circular disk from inside the disk jacket, then put it into the drive "because there was no way that disk could spin around if it was inside that black disk jacket."

. The people who get the Christmas syndrome: just go buy a computer then try to figure out what to do with it.

. Those who ignore instructions, just start keying until the system bombs.

. The ones who connect devices and cards without turning off the power. Who cares if the boards get fried?

. The individual who buys expensive but powerful data base or language packages, only to find out they are not menu-driven and require hours of training before they can be used.

. The person who attempts to make backup copies of disks by putting the original disk in the B drive and the backup copy in the A drive by mistake and then destroying the only copy in existence.

. Those who think you can put together a simple network of personal computers in a matter of a day or two.

. Backup? Why backup hard disks? Aren't they designed to be turned on and practically run forever? It is amazing how many people do absolutely no backup and then wonder how they will recreate their data files when they are accidently wiped out.

. The people who think there are no mistakes in the manuals.

Those who are micro computer users already should identify with much of this. And to those future users: be prepared for a humbling experience.
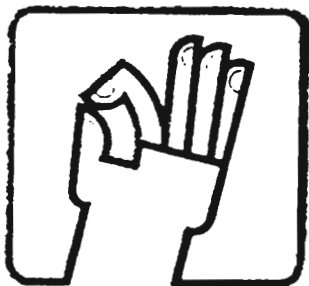
February 24, 1984

The February issue of UPTIME contained an interesting contribution from Dave Green of Jordan High School. Dave spotted an article in the January issue of Creative Computing which compared 107 different computers. A simple benchmark program written in BASIC was run on each of them. It tested computational accuracy, speed and the randomness of each system's random number generator. Even Dave Ahl, the author, admits that the test is not comprehensive.

Just the same, many CC readers wanted to see how their machine stacked up. Dave Green had the same idea. He rewrote the benchmark program in our dialect of BASIC, and sent the results to UPTIME.

We also were curious. We wanted to verify Dave Green's results and include figures from other parts of our product line. The table below summarizes what we found. A listing of the original program as copied from Creative Computing is included as well as a listing of our version. Ours duplicates the orginal as closely as possible, with one major exception; it runs the test for a given number of times non-stop, and averages the results. If the test were run for one pass, we found that the randomness measurement varied from poor to excellent from pass to pass.

Dave observed in his closing comment that "If the BTI 6000 is indeed 2-3 times faster than the 5000 then we should be competing with the likes of a DEC VAX!". I wish it were so, but when I showed the item to the R&D folks who are building the 6000 their eyebrows went up. They explained to me that the 6000 is 1.5 to two times as fast as a Mark II, if eight users are on each system. In a single-user environment, both will cross the finish line at the same time. Most of the speed gains in the 6000 were from a streamlining of the swap-in, swap-out overhead. No swaps, no gain.

You'll note that our results were different from Dave Greens'. If you examine his program at lines 200-210, you can see why. On each pass through the "Z=1 TO N" loop, the figures for that pass are added into the cumulative totals. The "stopwatch" still runs while these extra steps are done. They were not done in Ahl's benchmark, because it only runs for one pass. In our version, we stop the clock while the running totals are being added. We think it more closely duplicates what Ahl was doing.

The test was run for 100 passes on each of the systems shown. I'm sending a photocopy of the original article for your own comparison. It is copyrighted. If you ask their permission, they might let you reprint it. Our test results are not copywrited.

COMPUTER	TIME (seconds)	ACCURACY	RANDOMNESS
BTI 5000 Revision 16	5.73	.097412109151	10.3
BTI 5000 Mark II	4.29	.097412109151	10.2
BTI 8000 BASIC-XC 2.5-2	1.41	.01074219	9.9
BTI 8000 BASIC-X 4.2	1.41	.00000000023	9.9
BTI 8000 BASIC-XC 2.5-2 (66 concurrent processes)	2.19	.01074219	9.6
BTI 8000 BASIC-X 4.2 (66 concurrent processes)	2.58	.00000000023	9.9

Here is a copy of the program used by Creative Computing...

```
10 ' Ahl's Simple Benchmark
20 FOR N=1 TO 100: A=N
30 FOR I=1 TO 10
40 A=SQR(A): R=R+RND(1)
50 NEXT I
60 FOR I=I TO 10
70 A=A^2: R=R+RND(1)
80 NEXT I
90 S=S+A: NEXT N
100 PRINT ABS(1010-S/5)
110 PRINT ABS(1000-R)
120 END
```

(4)
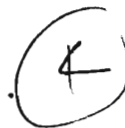
Here is the program that ran on the BTI machines...

```
0001    REM BASIC-X TRANSLATION OF DAVE AHL'S SIMPLE BENCHMARK
0002    REM ALLOWS MULTIPLE PASSES
0003    REM DAVE RATZ, RAY SMITH BTI CUSTOMER SOFTWARE SUPPORT
0004    REM FEBRUARY 23, 1984
0010    INPUT "LOOPS? ",L
0020    A1=R1=T1=0
0030    FOR L1=1 TO L
0040    S=R=0
0050    REM T STORES SYSTEM TIME (TENTHS SECONDS)
0060    T=REF(1)
0070    FOR N=1 TO 100
0080    A=N
0090    FOR I=1 TO 10
0100    A=SQR(A)
0110    R=R+RND(0)
0120    NEXT I
0130    FOR I=1 TO 10
0140    A=A^2
0150    R=R+RND(0)
0160    NEXT I
0170    S=S+A
0180    NEXT N
0190    T2=REF(1)
0200    REM T2 (ABOVE) SAVES SYSTEM TIME, THIS LOOP
0210    T1=T1+((T2-T)/10)
0220    A1=A1+ABS(1010-S/5)
0230    R1=R1+ABS(1000-R)
0240    NEXT L1
0250    PRINT "ELAPSED TIME PER LOOP, IN SECONDS           :";
0260    PRINT USING "3D.DD";T1/L
0270    PRINT "ACCURACY (.0000001 = EXCELLENT, .187805=POOR) :";
0280    PRINT USING "3D.12D";A1/L
0290    PRINT "RANDOMNESS (15 OR LESS=GOOD, OVER 15 FAIR)    :";
0300    PRINT USING "3D.12D";R1/L
9999    END
```

(5)

Creative Computing Benchmark

The Creative Computing benchmark is a short test of computational speed, accuracy, and the random number generator in Basic. Computers in the chart are listed in ascending order of completion time of the test expressed in minutes and seconds. In the accuracy measure, the smaller the number the better (.0000001 is excellent while .187805 is poor). In the randomness measure, smaller is better (numbers under 15 are good and over 15 are fair).

Since running the short article about the benchmark test, we have been overwhelmed with responses from readers who ran the test on machines not listed in our original table. With letters still pouring in, here are the results for 107 different computers.

We have taken note of the criticisms of this simple test and are in the process of devising a more comprehensive one. Watch for a follow-up article.—DHA

```
10 ' Ahl's Simple Benchmark
20 FOR N=1 TO 100: A=N
30 FOR I=1 TO 10
40 A=SQR(A): R=R+RND(1)
50 NEXT I
60 FOR I=1 TO 10
70 A=A^2: R=R+RND(1)
80 NEXT I
90 S=S+A: NEXT N
100 PRINT ABS(1010-S/5)
110 PRINT ABS(1000-R)
```

Computer	Time	Accuracy	Random
DEC VAX 11/780	0:01	.0113525	5.3
DEC VAX 11/780 (double)	0:015	.000000000163283	5.3
HP 9845B (390 bit slice)	0:03	.00000882	23.1
Control Data Cyber 730	0:03	.00000000355	6.1
Amdahl 470	0:04	.00000000011846	12.4
HP 3000 Series 44	0:04	.112549	12.9
HP 9836	0:05	.000000000127329	5.5
Wang 2200 SVP	0:05	.000000076	3.9
Stearns Micro	0:08	.005859375	7.1
Burroughs B20	0:09	.005938744544977	3.2
Alpha Micro AM 100T	0:10	.00000387337	12.4
Burroughs B22	0:12	.005859375	15.7
NEC Adv Pers Comp	0:12	.005859375	7.2
Tektronix 4054	0:12	.000000014042598	8.5
Olivetti M20	0:13	.0114136	6.2
Saybrook 68000 (in Apple)	0:13	.00000000011	10.4
TI Professional	0:15	.005859375	7.1
Compaq	0:15	.005859375	7.1
HP 9845B	0:15	.00000882	23.1
Zenith Z-100 (8088)	0:17	.005859375	9.7
ACT Apricot	0:18	.005859375	7.2
Sharp PC-5000	0:18	.005859375	7.2
Eagle PC-2	0:19	.005859375	7.2
DEC Rainbow 100	0:20	.005859375	7.2
Acorn BBC Computer	0:21	.0000128746033	5.2
Columbia MPC	0:21	.005859375	7.2
Computer Devices DOT	0:22	.005859375	7.1
IBM PC	0:24	.01159668	6.3
GCE Vectrex	0:33	.0753174	0.9
TI DS990/12 (Mini TS)	0:36	.000000388	3.1
Laser 2001	0:40	.0003272295	17.4
Memotech MX-512	0:46	.000252962112	6.9
HP 9020C	0:48	.000000000127329	23.2
Lobo Max-80	0:48	.0338745	5.8
Lynx	0:51	.155	14.1
TRS-80 Model 4	0:53	.0670776	6.5
Panasonic JR200	0:57	.00021481514	15.1
SCS 100	0:59	.187805	7.4
IMS 8000	0:59	.187805	9.6
Alspa ACI-1	0:59	.187805	7.4
DECmate II	0:59	.187805	7.4
Xerox 820-II	0:59	.187805	7.4
Vector Graphic 3 VIP	1:04	.0338745	7.5
Zenith Z-100 (8085)	1:04	.187805	9.5
Toshiba T100	1:09	.187805	7.4
Epson QX-10	1:09	.187805	7.4
Osborne O1	1:10	.187805	7.4
Mattel Aquarius	1:17	.187805	10.8
Epson QX-10	1:18	.187805	7.4
HP-85A	1:20	.00000002	5.8
Morrow MD3 (Bazic 16)	1:21	.000473	3.6
HP-86A	1:25	.00000002	5.8
Tektronix 4051	1:26	.000000014042598	8.1
Digital Group Bytemaster	1:27	.000062779	3.6
NEC PC-8001A	1:29	.0338745	3.0
Atari 800 (MBasic)	1:35	.156879	2.1
Kaypro II	1:36	.187805	7.5
Sony SMC-70	1:37	.0000000458	3.8
HP-75C	1:38	.00000002	5.8
North Star Horizon(10 dig)	1:41	.000473	3.6
NEC PC-8201	1:44	.187805	9.3
MicroOffice RoadRunner	1:48	.187805	7.4
Teleram 3000	1:48	.187805	7.4
Apple III	1:48	.011914	6.7
Vic 20	1:49	.0010414235	23.7
HP 9830B	1:52	.00000889	13.1
Commodore 64	1:53	.0010414235	8.9
Apple II plus	1:53	.0010414235	12.0
Apple IIe	1:53	.0010414235	12.0
NEC PC-8801A	1:54	.187805	7.4
Rockwell Aim 65	1:56	.00104141235	14.7
Compucolor II	1:57	.0338745	1.4
TRS-80 Model III	1:59	.0338745	5.8
Micro Color Computer	1:59	.000596284867	7.6
Commodore CBM 8032, 2001	2:04	.0010414235	1.4
Heath/Zenith H-89A	2:04	.187805	7.4
Atari 2600 Graduate	2:15	.000224679788	7.9
TRS-80 Model I	2:19	.0338745	12.0
Color Computer	2:23	.000596284867	7.3
Atari 800 (fastchip)	2:23	.006875	7.0
Dragon 32	2:29	.000596284867	7.3
Epson HX-20	2:36	.0338745	23.8
Timex/Sinclair 1000 (fast)	2:43	.00041294898	8.7
Interact Model R	2:50	.0338745	8.1
Wang 2210	2:52	.000011432	12.5
OSI Challenger 1	3:07	.0010414235	13.9
SpectraVideo 318/328	3:40	.000002058	0.7
TI 99/4A	3:46	.00000011	2.6
Radio Shack PC-3	4:00	.00000627	10.9
TI 99/4A, Extended	4:10	.00000011	10.7
Oric-1	4:10	.00104141235	12.1
Datapoint 1800	4:16	.0000012042	11.3
Sinclair ZX81	4:23	.0006685257	6.3
Sinclair Spectrum	4:39	.0006685257	3.5
TRS-80 Model 100	4:54	.000002058	0.7
Casio FP-200	5:05	.00723	30.3
Sharp PC-1500 (RS PC-2)	5:10	.0000288	7.8
TI CC-40	5:41	.00000288	6.2
Sanyo PHC-25	5:41	.000267505646	10.2
Canon X-07	6:03	.000002058	24.9
Atari 1200XL	6:45	.013959	5.2
Atari 400/800	6:48	.012959	22.8
Sharp PC-1250	11:14	.0000288	5.9
Timex/Sinclair 1000(slow)	16:55	.00041294898	7.4
IBM System 23	19:00	.000000005503	3.4
HP-97	23:00	.000034	—
Sharp PC-1211	28:32	.000062882	—

***** HARDWARE CLASSIFIEDS *****

1. BTI-5000 with 16 ports and DEI Tape Unit. System available with Ampex 980 80 MB drives. $10,000 per computer plus $2,500.00 per drive. Also, 8 port comm panels @ $950.00 and LA120 Decwriters @ $1,400.00 ea. Call Sheldon Shapiro at TBS (415) 858-2800. (EXP 11-84)

2. BTI 4000: Standard Configuration BTI 4000 with 16 ports, 1-49 MB Drive, 1-DEI Tape Drive, has been under BTI service contract; coming off a lease. Best Reasonable Offer. GRW Systems, 408/745-7720. (EXP 11-84)

3. BTI 5000: Standard Configuration BTI 5000 with 8 ports, 1-58 MB OKI Data Drive, 1-DEI Tape Drive. Has been under BTI service contract; coming off a lease. $17,500. GRW Systems, 408/745-7720. (EXP 11-84)

4. BTI 4000: 2 each 49 MB Drives, DEI Tape drive, 32 ports, Call Earnie Philips or Ellen Scott at 215/849-1200. Best reasonable offer. MARS/ASAP/PAYROLL/JOBCOSTING for BTI 4000 & 5000. MARS is a full DBMS, ASAP is an excellent accounting system, includes GL, A/P, A/R, Payroll, Job Costing. Call Earnie Philips/Ellen Scott 215/849-1200. (EXP 12-84)

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***** SOFTWARE ADVERTISING *****

MARS/ASAP/QUICK - GRW Systems, Inc. offers a BASIC-X DBMS (MARS), plus fully integrated accounting and order entry/inventory control packages for the BTI 16 bit (4000/5000/6000) or 32 bit (8000) environments. MARS can operate as a standalone DBMS, or application development tool for your software, or can be used as the foundation for GRW's applications. Phone 408/745-7720, or write GRW Systems, Inc. at 1274 Geneva Drive, Sunnyvale, CA 94089 for additional information on this very high quality family of software. (EXP 11-84)

MARS II - 4th Generation DBMS and Application Development Tools for the BTI 8000. Data Dictionary, Report Writer, Screen Generator, Encrypted Files, and many other features are standard. Don't consider applications on the BTI 8000 without considering the 90-95% reduction of programming cost that this product can provide! Development Modules, End User Modules, and Run Time Modules are all available. Call GRW Systems at 408/745-7720 (1274 Geneva Drive, Sunnyvale, CA 94089) for more information on MARS II and/or our applications for the very exciting 4th Generation Relational Environments. (EXP 11-84)

SPREAD SHEET PROGRAM - Spread sheet of up to 99 columns and 676 rows. Each element may be either numeric or alphabetic. Insert/Delete columns or rows. Built in trignometric, average, standard deviation functions. Sum a range of row or columns. Much much more. Requires 8000 with Pascal. SAC Computer Center; Keene, TX 76059 (EXP 12-84)

MARS/ASAP/PAYROLL/JOB COSTING For BTI 4000 & 5000. MARS is a full DMBS, ASAP is an excellent accounting system and includes GL, A/P, A/R. JobCosting & Payroll. Call Earnie Philips or Ellen Scott at 215/849-1200. Best reasonable offer. (EXP 12-84)

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***** HARDWARE TIP OF THE MONTH *****

To revive a "dead" port on your computer, first try restarting or re-booting the system. Should this fail, plug in a cable and terminal which you know at the time is working properly and attempt to communicate with it. Should this measure fail, we would suspect either the communication board involved or the actual back pannel itself has been damaged at that port location. BTI should then be called to visit or analyze the condition and send the necessary replacement parts.

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COMPUTER ANSWER MODEM

From: ComData Corp./Chicago (Contact: Walt Manning)
Warranty: Lifetime (312) 470-9600
8 - Port $297.00
300 Card   197.00

REMOVABLE DISK PACK CLEANING

From: Scopus 1-800-225-0893 (Contact: Kris Powell/Atlanta)
Cost: Disk packs (49 mgb) 2316 type-protection - onsite
      cleaning.....................$14.50 each

PUBLICATIONS

Hot-Line Magazine   Good for advertising equipment
Contact: Beth   and/or buying equipment
1-800-247-2244

UP-TIME Newsletter   Good for keeping up with the
Contact: Teresa   latest on your BTI !
(615) 242-4477

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'Computers, eh? Am I ever glad to see you!'

(9)

<<<<<<<<<< NEXT MONTH'S FEATURE ARTICLE >>>>>>>>>>

WHAT TO FEED YOUR COMPUTER

This article will be brought to you by Ray Smith in the Customer Software Support Division of BTI Computer Systems in Sunnyvale, CA. Trevor Evans, with TUI Computer Services in Nashville, TN asks:

We have a line conditioner on our BTI. How many other devices can we plug into the system power supply panel without overloading? We'd like to provide pure power for our modems, etc.

From this question, Ray builds an entire article dealing with power requirements for computers...very interesting reading.

In other news...

    The program REPlace command, suggested by Gene Butler in UPTIME #18 (May 84) is currently under development by R&D. Look for it with the next release.

    Development of new BASICX program statements, which allow access to model 8000 SAF-type files, has been completed. They are being tested in-house.

    The first pair of prototype model 6000's are being sent to customer sites for alpha testing in September.

    We've already mentioned that work is in progress on string arrays for the model 8000. One possible extension of this idea is string matrices, which would use many of the same commands currently available for numeric arrays, i.e., MAT A = B, etc. It's just an idea at this point. Why don't you send us a note telling us what you think of it?

--Raymond Smith,
BTI Customer Software Support
September 13, 1984

10

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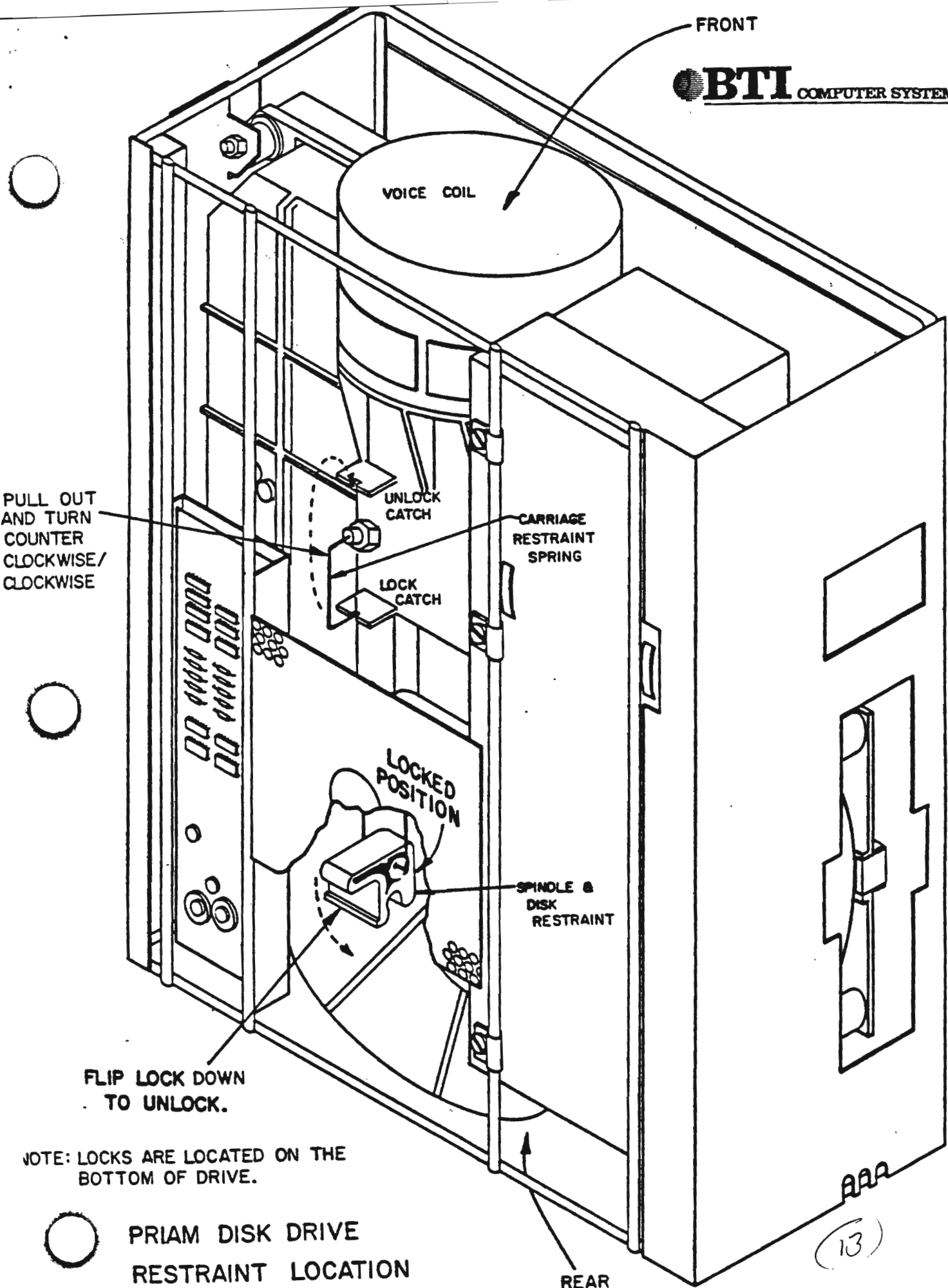***** BTI LINE DRAWINGS *****
(AMPEX 980 AND DEI CABLING)

As mentioned in last month's newsletter, we will be printing a series of line drawings which are used by BTI's phone engineers. BTI has advised readers to make certain their system conforms to any given chart BEFORE pulling cables loose. Check first. These charts are the most common, but there are variations. If these drawings apply to your equipment, it would be a good idea to tape them inside the skins of your BTI Equipment for quick-ready reference.

GROUND STRAPS

RED STRIPE

SMT

CPU

WDC2

AC POWER PLUGS INTO THE WALL

DC GND

ON OFF

DC

AC

AC GND

RED STRIPE

1A

15A   15A

RED STRIPE

POWER SUPPLY

AMPEX 980

11

BTI COMPUTER SYSTEMS

DC POWER

DRIVE-2

DRIVE-1

PIN 1 RED WIRE

PIN 1 RED WIRE

PIN 1 RED WIRE

DEI

CPU

PIN 1 RED WIRE

ON OFF

TO FAN PANEL

TO FALCON DRIVE

TO COM 2 PANEL

BATT INPUT

ON OFF

DEI CABLING

FRONT

BTI COMPUTER SYSTEMS

VOICE COIL

PULL OUT
AND TURN
COUNTER
CLOCKWISE/
CLOCKWISE

UNLOCK
CATCH

CARRIAGE
RESTRAINT
SPRING

LOCK
CATCH

LOCKED
POSITION

SPINDLE &
DISK
RESTRAINT

FLIP LOCK DOWN
TO UNLOCK.

NOTE: LOCKS ARE LOCATED ON THE
BOTTOM OF DRIVE.

PRIAM DISK DRIVE
RESTRAINT LOCATION

REAR

(13)
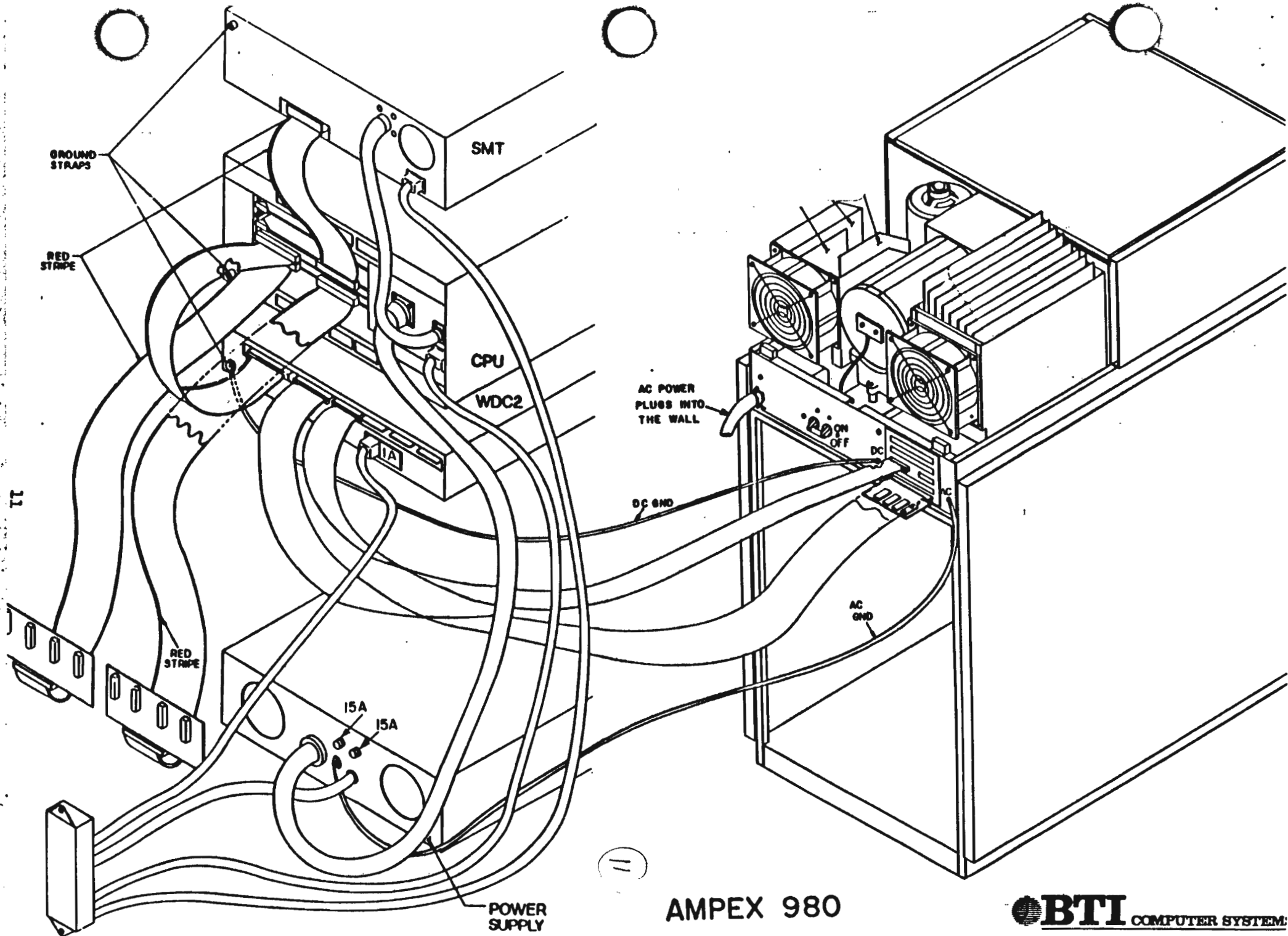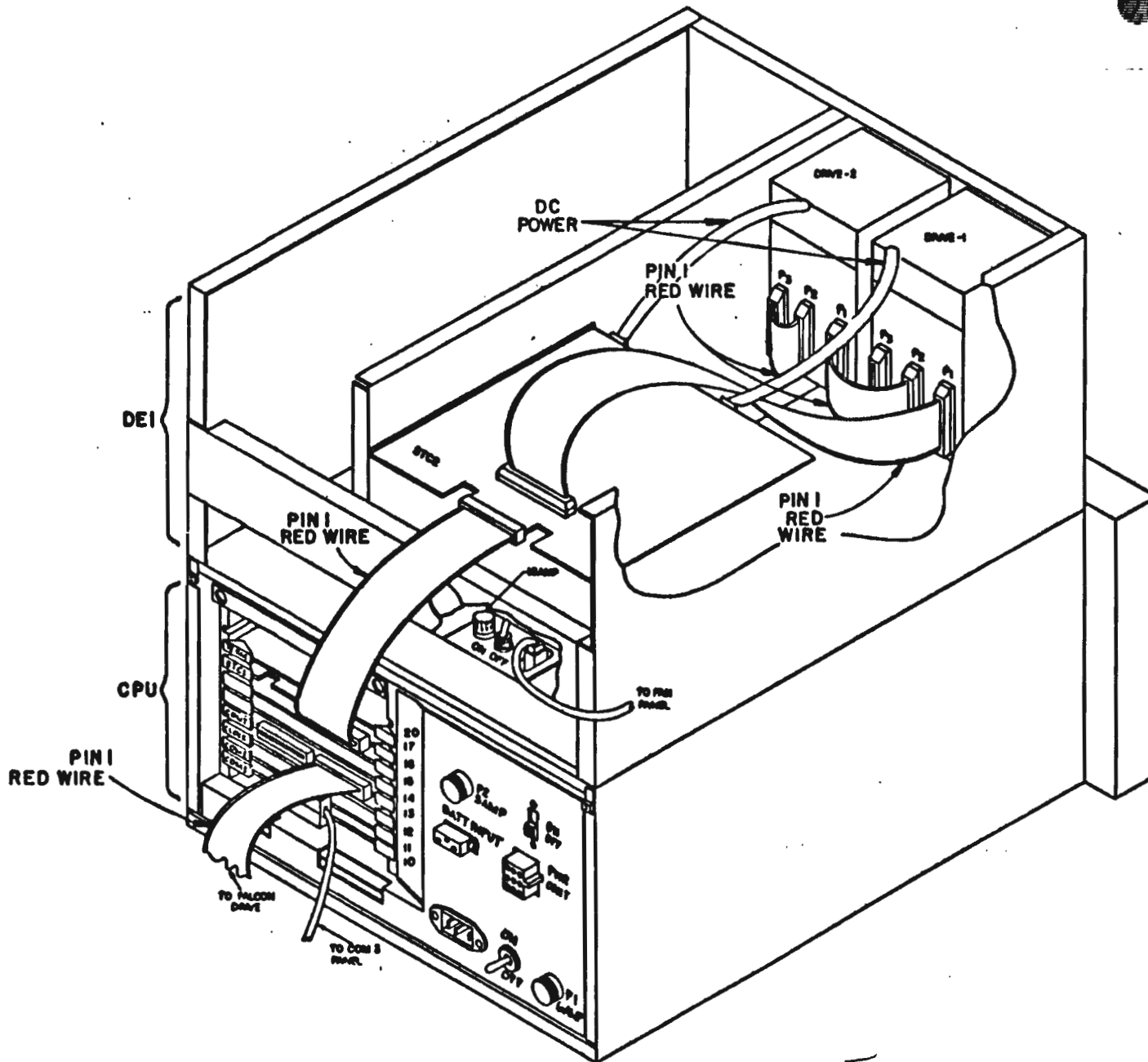
***** SUGGESTIONS FOR BTI 6000 ENHANCEMENTS *****
(From survey sheet in last month's UP-TIME)

We thank those of you who did take time to fill out the BTI 6000 survey sheet in last month's issue, and especially those of you who also submitted notes and letters! This all helps BTI to hear our needs and produce future products which will be more beneficial for our uses.   As for those of you who did not respond...we assume you had no suggestions and are 100% satisfied with your BTI Computer.

UP-TIME has prepared a formal report for BTI and mailed it along with the original survey sheets, and your letters, to Jon Nickerson, vice-president. We also forwarded copies to BTI's Field Service Department in Sunnyvale.

In short, the following information was gathered: (Number of responses received: 11 out of a possible 130).

<u>RATING = 0 to 5</u>

```
0 = No value to you
3 = Nice to have
5 = Very important to you
```

#1. Larger program size:
```
0=  8%          3=  8%
1=  0%          4=  0%
2=  0%          5= 84%
```

#2. Eliminate logical constraint:
```
0=  8%          3= 50%
l=  0%          4=  0%
2=  8%          5= 34%
```

#3. Type ahead feature:
```
0=  0%          3= 43%
l=  8%          4=  8%
2= 25%          5= 16%
```

#4. Larger input/output buffers:
```
0=  0           3= 33%
1=  8%          4= 29%
2=  0%          5= 30%
```

#5. EXEcute command combining GET and RUN:
```
0= 16%          3= 43%
1= 25%          4=  8%
2=  8%          5=  0%
```

#6. Multiple languages as on 8000 computer:
```
0= 33%          3=  8%
1= 16%          4= 25%
2=  0%          5= 18%
```
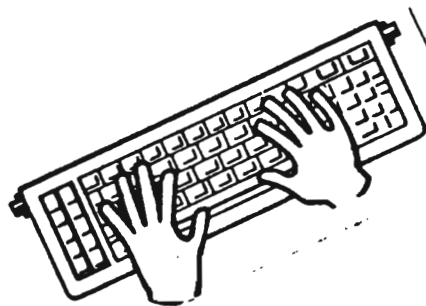
#7. Allow more than 32 ports:
```
0= 25%              3= 43%
1= 16%              4=  8%
2=  0%              5=  8%
```

#8. Lower cost of the product:
```
0= 25%              3= 16%
1=  0%              4=  0%
2=  0%              5= 59%
```

#9. Lower cost of service:
```
0= 25%              3= 16%
1=  0%              4=  0%
2=  0%              5= 59%
```

#10. Expand number of string operations:
```
0=  8%              3= 59%
1=  0%              4=  8%
2=  8%              5= 17%
```

#11. More characters for variable names:
```
0=  8%              3= 43%
1=  8%              4=  8%
2=  0%              5= 33%
```

#12. String names like HP Basic:
```
0= 33%              3= 25%
1=  0%              4=  8%
2=  0%              5= 34%
```

#13. Implement some features of 8000's
     XI mode:
```
0=  8%              3= 16%
l=  8%              4= 34%
2=  0%              5= 34%
```

#14. String division:
```
0= 33%              3= 17%
1=  0%              4=  8%
2=  0%              5= 42%
```

#15. Eighth data bit on port selectable
     basis:
```
0= 25%              3= 25%
1=  0%              4=  0%
2=  0%              5= 50%
```

#16. Capable of operating in normal
     office environment:
```
0= 42%              3= 25%
1=  0%              4=  8%
2= 25%              5=  0%
```

In summary, larger program size was the most highly rated request followed by surprisingly the eighth data bit, string division, and $$ for products and services. Some of the written comments we also received were...

Question #5: Why not simply RUN-NAME? No new command.
Question #6: YES vote for Pascal !!
Question #7: 32 ports would only slow down the computer.
Question #12: Big deal! What is needed are string arrays!
Question #14: Why not allow effective XI all the time like micros do!
Question #15: I would prefer to have the eighth bit in strings so all eight bits of each byte would be used for storage.
Questions #8 & 9: Lower costs degrades product.
Question #15: Why not 64 bit arithmetic?
Question #16: If you do this, then you will find the computer will still work more better in a controller environment. Controlled environment is small cost compared to down time.
Question #4: Larger buffers seems "gimmicky".
Question #5: Per EXEcute Commmands; our users operate thru a controlled program.
Questions #8 & 9: Lower costs not at the expense of quality.
Question #12: Per string names; a real need, combined with larger program size!

Miscellaneous notations:
   1. Larger Programs
       Memory cost today is nearly zero compared to program cost and operator time. It does not make sense to limit size.
   2. Named variables (up to 15 characters is ideal).
   3. String arrays
       Example:

       DIM Name $ (10,20) [40]

       Would set up a 10 X 20 array of 40 character strings.
       Any of the resulting 220 strings would be assessed by:

       Name$ (x,y)

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UP-TIME

(T.M.)

A PUBLICATION FOR USERS OF BTI 4000, 4800, 5000, 6000, & 8000 COMPUTERS

SPECIAL ISSUE - POWER FOR YOUR COMPUTER

①

```
######################################################################
#                                                                    #
#                                                                    #
#                    TABLE OF CONTENTS                               #
#                                                                    #
#                                                     Page           #
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```
#                                                                    #
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***** WELCOME NEW SUBSCRIBERS *****

Robert Bade - Newport Imports Inc.
Marlys Brimmer - M-Tron Industries Inc.
Michael Cooper - Underground Resource Management Inc.
Tom McMinn - McMinn Furniture Inc.
Harold Raphael - Concentric Computer Corporation
Ron Tatum - A Page A Call
Buford Welch - Pump Energy Inc.
James Windsor - Midwest Timesharing Systems Inc.
Richard Deering - Wilberforce University
Carlos Puentes - Texas Timesharing Inc.
Bernie Sperley - First Interstate Bank of Oregon

If you know of someone that might be interested in receiving a
complementary issue of UP-TIME, please fill out the form at the
end of this subscription with their name and address.

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***** EDITOR'S INTRODUCTION *****

This issue of UP-TIME is primarily addressed to our readers who
are not using any type of power protection for their BTI
Computers and other office machinery such as CRTs and word
processors.

Do you need an electrical stabilizing system installed?

Certain types of voltage regulators, may be necessary. where
"spikes" or "dips" in voltage may occur.

Power may distort data entered into your computer system at any
time.

For example, a "spike" may happen when the utility company is in
the process of reducing electricity during off-peak hours.
"Spikes" can also take place during the hours of 8 AM and 10 AM,
when all the office computers come on-line at once.

If "spikes" are common in your area, have voltage equipment
installed at the power source to keep the voltage steady,
regardless of the highs and lows in power. The cost of such
equipment can vary depending upon the specific power conditioning
needed in YOUR AREA for YOUR specific EQUIPMENT NEEDS. Have your
power analyzed. Next, after your power has been evaluated,
contact someone quailified with computer room electrical
protection. This is the best insurance provided to save down-
time, disaster money expense, and frustration later on.

If you do not completely understand power requirements for your
BTI, consult your manuals, or call BTI at: 1-800-538-8480.

***** HARDWARE TIP OF THE MONTH *****
--- LINE CONDITIONER ---

It is possible that voltage fluctuations can cause computer problems. Also, continual low voltage can definitely cause rapid detoriation of computer parts. BTI will send to you, upon request, a voltage line testor so you can conduct tests over a one week period to monitor your actual fluctuations. Should a test indicate significant fluctuations, we strongly advise your purchasing a line conditioner. We have found through our experience, this will significantly increase uptime.

NOTE: BTI will gladly advise you if an isolation or voltage transformer or a line conditioner is needed.

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***** MARKETING - LET'S WORK TOGETHER ! *****

Here, at UP-TIME, we have had several requests from various companies inquiring what type of advertising seems to work best for computer companies such as ourselves. Even if your BTI Computer was purchased solely for your own in-house use...remember, you can have extra income by timesharing out spare ports and storage to other companies which may not be able to afford a computer, or large companies looking for spare storage to save them from having to purchase an additional computer. Whatever the reason for marketing computer time, we would like to hear from you!

    1. What is your major means of advertising and why?
    2. What other types of advertising have you tried?
    3. Have you ever employed the services of an advertising
        agency?...Experience good or bad and why?
** 4. Please mail UP-TIME a copy of your Yellow Page
        advertisement in the phone book.
    5. Please feel free to send any other advertising
        brochures, or gimmicks.

Why are we asking all this? Special January issue of UP-TIME coming out dealing with A-D-V-E-R-T-I-S-I-N-G ! Do's and Don'ts. It is important to hear from various UP-TIME Readers across the country on this subject. Some ideas work better in some parts of the country...and not so well in others.

Anything on this subject would be appreciated (especially a copy of your Yellow Page Ad)! Dead-line for mail-ins on this subject is January 10th...

THANKS FOR YOUR HELP !!

For all of us in Customer Software Support, let me say that it's a pleasure to be back on line. Trevor Evans asks:

"We have a line conditioner. How many other devices can we plug into it without overloading?   We'd like to provide pure power for our modems."

The fall thunderstorm cycle is about to begin again, so this seems like a good time to discuss system power requirements generally. The most important thing to remember is that equipment failures caused by bad power are NOT covered by your maintenance contract. The intermittent nature of these problems and the wide (sometimes wierd) variety of symptoms that result make them difficult and expensive to diagnose. It is a wise investment to spend the time, and if necessary, the money, to avoid them from the start. Power requirements are discussed in detail in the Site Preparation Guide, available from our Technical Publications Department. The document can be profitable reading.

Our experience has shown that polluted power is widespread, even in urban areas. In 80% of the cases in which a phones engineer has requested a power monitor, the test showed intolerable dropouts, brownouts, spikes, or surges. There is a waiting list for power monitors. We find new candidates every week.   Some of these systems have run perfectly for years, but changing conditions at or outside of the site made a line conditioner necessary.

Bad power is dangerous because any computer uses high-speed, low-power transistors.   By nature, they do not resist shots of high voltage well. Damage may not become apparent for months. And for devices which perform millions of operations per second, an extremely brief drop in power can equate to an eternity. That's why a line filter is built into the power panel of every BTI computer. Normally, it is enough. Sometimes additional devices are necessary.

The appropriate type of device and the cost, are determined by your system's power needs and an analysis of a power monitor test. If the monitor tape shows no line noise, but sagging voltage, a constant-voltage transformer will automatically adjust output to compensate. The one we recommend is made by SOLA Corp. of Elk Grove Village, Ill. If the voltage is occasionally too high (sharp voltage spikes), then an isolation transformer is necessary. We recommend a model from DELTEC Corp., of San Diego. If voltage is high, low, AND littered with spikes, then a line conditioner is required. The model we recommend is made by SOLA.

The causes of bad power are too numerous to list. Some, like a defective power pole transformer or corroded wall socket, are one-time affairs. Summer air-conditioning loading or lightning storms may come and go with the seasons. Others, such as a large air compressor at an auto dealership will happen from time to time, all the time. Symptoms include, but are not limited to:

--Halt 00, 04, 44, 45, 66, 88, 8.8's.

--Trashed directories. Slow system and/or software bugs cured by a reboot. Disk errors. Timing stars on a ROSter.

--"PWR FAIL" notations in a complete history via 32PORTLOG.

By themselves, they are not uncommon. But if they are chronic, we suggest you call Field Service and report your suspicions. The engineer will examine your log record, and ask you some questions. He may refer you to the engineer who currently handles power monitor scheduling. Customers are only charged a one-way shipping fee. This is much cheaper than getting back-billed for power-damaged parts changeouts. It's easier than tolerating lost data, volume backups, or pauses during the work day caused by "glitches".

The answer to your question, Trevor, depends on a little work with a pocket calculator. We should say right off that the outlet strip inside the fan panel is off-limits. It is on the equipment side of the built-in line filter. If any equipment plugged in there introduces interference, it will go straight to the CPU, the disk controller, drives, and any other devices plugged into the same strip. The system is very vulnerable at that point. Devices hooked up to telephone lines are particularly susceptible to interference from switching noise, ground loops, and lightning hits. This is why tapping into the fan panel will void your service contract.

You'll need an electrician to add a "Y" type adaptor, and a standard AC power strip, to the conditioner, if that's feasible. First determine if the conditioner has enough power to spare by checking its rated amperage. This will be stamped onto one or more labels. For a typical model, this is 25 amps. A one-drive system pulls about 13 while running. This jumps briefly to 38 when the disk drive is first turned on. For a twin-drive cabinet, the numbers are 18 and 68, respectively.

Then figure the combined amperage of all the devices you plan to add. The power consumption of each may be stated as watts. To determine the equivalent amperage, divide watts by the operating voltage, which is 110. If the total drain approaches the maximum output, you'll need either a larger conditioner or a separate one for the modems.

Remember also that the computer's outlet is typically rated at 30 amps, maximum. The line conditioner is not 100% efficient, so it will inevitably pull more than the computer, even under ideal conditions. If the outlet voltage is low, the conditioner will make up the difference by pulling additional amps and converting them to volts. So it's hard to predict precisely when the circuit breaker will pop.

The primary consideration in your decisions is, of course, safety.

WHAT ARE POWER LINE DISTURBANCES?

POWER LINE DISTURBANCES ARE THE DAMAGING FLUCTUATIONS PRESENT IN THE "RAW ELECTRICAL POWER" YOU RECEIVE FROM THE UTILITY COMPANY. THESE POWER LINE DISTURBANCES INCLUDE VOLTAGE SURGES AND SPIKES, AND THREE TYPES OF NOISE INTERFERENCE, MAINLY, RADIO FREQUENCY INTERFERENCE (RFI), ELECTROMAGNETIC INTERFERENCE (EMI), AND ELECTROMAGNETIC PULSE INTERFERENCE (EMP).

WHAT ARE VOLTAGE SURGES AND SPIKES AND POWER LINE NOISE?

A VOLTAGE SURGE IS A VOLTAGE IMPULSE WHICH LASTS A FEW THOUSANDTHS OF A SECOND AND TYPICALLY REACHES A 3000 VOLT PEAK (SEE FIG. 2).

A VOLTAGE SPIKE (OR TRANSIENT) IS A VOLTAGE IMPULSE WHICH LASTS ONLY A FEW MILLIONTHS OF A SECOND BUT TYPICALLY REACHES 6000 VOLT PEAKS (SEE FIG. 1).

POWER LINE NOISE (SEE FIG. 3) IS ELECTRICAL INTERFERENCE TRANSMITTED THROUGH THE POWER LINE. IT IS CAUSED BY ANYTHING FROM STATIC ELECTRICITY TO LIGHTNING AND IS TRANSMITTED IN TWO MODES - THE TRANSVERSE MODE AND THE COMMON MODE. TRANSVERSE MODE NOISE IS THE INTERFERENCE THAT OCCURS ACROSS THE TWO LIVE WIRES OF THE POWER LINE, WHILE COMMON MODE NOISE IS THE INTERFERENCE THAT OCCURS BETWEEN THE GROUND WIRE (COMPUTERS USE THE GROUND WIRE AS A LOGIC REFERENCE!) AND ONE OF THE TWO LIVE WIRES OF THE POWER LINE. NOISE INTERFERENCE IS PRESENT ON ALL POWER LINES AND CONSISTS OF ELECTROMAGNETIC INTERFERENCE (EMI), RADIO FREQUENCY INTERFERENCE (RFI), AND ELECTROMAGNETIC PULSE INTERFERENCE (EMP).

CLEAN, STABLE VOLTAGE (SEE FIG. 4) IS WHAT YOUR EQUIPMENT WAS MEANT TO RUN ON. THE "RAW" UTILITY POWER YOU ACTUALLY RECEIVE FALLS FAR SHORT OF THIS "IDEAL PURE SINE WAVE" AC POWER FOR MANY REASONS

WHAT CAUSES VOLTAGE SURGES AND SPIKES AND POWER LINE NOISE?

VOLTAGE SURGES AND SPIKES OCCUR IN THE TYPICAL POWER LINE OVER 2000 TIMES EACH YEAR, AND ARE COMMONLY CAUSED BY:
1) THE SWITCHING ON AND OFF OF ELECTRIC MOTORS, COPYING MACHINES, AIR CONDITIONERS, AND ELEVATORS.
2) POWER LOAD ADJUSTMENTS AND SWITCHING BY THE POWER COMPANIES.
3) LIGHTNING, TRANSMITTED THROUGH THE POWER LINES.

FIG. 1 VOLTAGE SPIKE

FIG. 2 VOLTAGE SURGE

FIG. 3 POWER LINE NOISE

FIG. 4 CLEAN, STABLE VOLTAGE

OWER LINE NOISE INTERFERENCE IN BOTH TRANSVERSE AND COMMON MODES EXISTS AS
MI, RFI, AND EMP INTERFERENCE, EACH HAVING ITS SPECIFIC CAUSES:

   1) EMI INTERFERENCE IS CAUSED BY FLUCTUATING MAGNETIC FIELDS THAT ARE
      PRESENT BECAUSE OF:
      A) FLOURESCENT LIGHT SYSTEMS.
      B) DIMMER SWITCHES.
      C) LOOSE OR DEFECTIVE LIGHT SOCKETS.
      D) AUTOMOBILE IGNITION SYSTEMS.
      E) NORMAL SUNSPOT ACTIVITY.
   2) RFI OCCURS BECAUSE THE POWER LINES ACT LIKE ANTENNAE AND PICK UP
      RADIO, TELEVISION, TWO WAY AND CB RADIO SIGNALS TRANSMITTING THESE
      SIGNALS DOWN THE POWER LINE. INTERCOM SYSTEMS ARE ALSO MAJOR RFI
      INTERFERENCE SOURCES.
   3) EMP INTERFERENCE IS CAUS.D BY A COLLAPSING MAGNETIC FIELD, SUCH AS
      THAT WHICH IS BROUGHT ABOUT BY LIGHTNING.

***** DAMAGE CAUSED BY BAD POWER *****

DAMAGE CAUSED BY VOLTAGE SURGES AND SPIKES

----

   * DATA STORED IN RANDOM ACCESS MEMORY (RAM) CAN BE ALTERED.
   * ENTIRE MEMORY BLOCKS CAN BE ERASED!
   * CIRCUIT MELTING!
   * INSULATION BREAKDOWN IN MEMORY CHIPS!
   * DISK DRIVE HEAD CRASHES AND PITTING OF DRIVE HEADS!
   * HAZARDOUS SHORTS, AND EVEN FIRE, CAN BE CAUSED DUE
     TO ELECTRICAL ARC-OVER!
   * TYPICALLY POWER LINE SURGES AND SPIKES WILL CAUSE PREMATURE
     COMPONENT FAILURE AND COSTLY DOWN TIME IF THEY ARE NOT
     ELIMINATED WITH A HEAVY DUTY, COMMERCIAL, SURGE - SPIKE - NOISE
     SUPPRESSOR, BUILT SPECIFICALLY FOR "WORST CASE" PROTECTION.

DAMAGE CAUSED BY POWER LINE NOISE

----

   * RAM MEMORY WIPE-OUTS!
   * DISPLAY FADEOUTS.
   * SCRAMBLED PROGRAMS.
   * ERRONEOUS DATA OUTPUT AND LOSS OF DATA.
   * DATA TRANSMISSION INTERFERENCE.
   * GLITCHES.
   * ALTERED MEMORY BLOCKS!

***** HARDWARE CLASSIFIEDS *****

1. BTI-5000 with 16 ports and DEI Tape Unit. System available with Ampex 980 80 MB drives. $10,000 per computer plus $2,500.00 per drive. Also, 8 port comm panels @ $950.00 and LA120 Decwriters @ $1,400.00 ea. Call Sheldon Shapiro at TBS (415) 858-2800. (EXP 11-84)

2. BTI 4000: Standard Configuration BTI 4000 with 16 ports, 1-49 MB Drive, 1-DEI Tape Drive, has been under BTI service contract; coming off a lease. Best Reasonable Offer. GRW Systems, 408/745-7720. (EXP 11-84)

3. BTI 5000: Standard Configuration BTI 5000 with 8 ports, 1-58 MB OKI Data Drive, 1-DEI Tape Drive. Has been under BTI service contract; coming off a lease. $17,500. GRW Systems, 408/745-7720. (EXP 11-84)

4. BTI 4000: 2 each 49 MB Drives, DEI Tape drive, 32 ports, Call Earnie Philips or Ellen Scott at 215/849-1200. Best reasonable offer. MARS/ASAP/PAYROLL/JOBCOSTING for BTI 4000 & 5000. MARS is a full DBMS, ASAP is an excellent accounting system, includes GL, A/P, A/R, Payroll, Job Costing. Call Earnie Philips/Ellen Scott 215/849-1200. (EXP 12-84)

5. BTI 4000: Used on Reynolds & Reynolds VIM III System, 24 ports, one-DEI Tape Unit, three 10-mb Falcon Drives. Will sell complete or individual parts. MAKE OFFER! Call Sam Savidge (206) 622-1981. (EXP 01-84

6. 2 - U.S. Robotics Phone Link Accoustical Couplers, 300 baud, almost like new, guarantee, power supply..............$75.00 each
1 - U.S. Robotics Micro-Link 300 Modem...............$150.00
Contact: Trevor Evans/TUI Computer Services (615) 242-4477

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***** SOFTWARE ADVERTISING *****

MARS/ASAP/QUICK - GRW Systems, Inc. offers a BASIC-X DBMS (MARS), plus fully integrated accounting and order entry/inventory control packages for the BTI 16 bit (4000/5000/6000) or 32 bit (8000) environments. MARS can operate as a standalone DBMS, or application development tool for your software, or can be used as the foundation for GRW's applications. Phone 408/745-7720, or write GRW Systems, Inc. at 1274 Geneva Drive, Sunnyvale, CA 94089 for additional information on this very high quality family of software. (EXP 11-84)

MARS II - 4th Generation DBMS and Application Development Tools for the BTI 8000. Data Dictionary, Report Writer, Screen Generator, Encrypted Files, and many other features are standard. Don't consider applications on the BTI 8000 without considering the 90-95% reduction of programming cost that this product can provide! Development Modules, End User Modules, and Run Time Modules are all available. Call GRW Systems at 408/745-7720 (1274 Geneva Drive, Sunnyvale, CA 94089) for more information on MARS II and/or our applications for the very exciting 4th Generation Relational Environments. (EXP 11-84)

SPREAD SHEET PROGRAM - Spread sheet of up to 99 columns and 676 rows. Each element may be either numeric or alphabetic. Insert/Delete columns or rows. Built in trignometric, average, standard deviation functions. Sum a range of row or columns. Much much more. Requires 8000 with Pascal. SAC Computer Center; Keene, TX 76059   (EXP 12-84)

MARS/ASAP/PAYROLL/JOB COSTING For BTI 4000 & 5000. MARS is a full DMBS, ASAP is an excellent accounting system and includes GL, A/P, A/R. JobCosting & Payroll. Call Earnie Philips or Ellen Scott at 215/849-1200. Best reasonable offer. (EXP 12-84)

FSORT - Is a complete rewrite of BTI's $$$F-SORT, which can reduce sort times by 50% (especially for string keys). It automatically chooses between 2 sorting techniques and can sort much larger files. Priced @ $400.00 postpaid on magnetic tape cartridge. Harold Raphael, Concentric Computer Corp., 830 Bay Avenue, Capitola, CA 95010. 408/476-9331   (EXP 1-85)

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<<<<<<<<<< NEXT MONTH'S FEATURE ARTICLE >>>>>>>>>>
----- COMPUTER ROOMS...AND WHY FOR THE BTI... -----

Is your BTI in a "special environment"? In the December issue of UP-TIME, we will be discussing the pros and cons of having a "special environment" for the BTI Computer.

We would like to hear from you! Send us any suggestions you may have for setting up a computer room, or arguments as to why you have not set up such a room...SPEAK OUT!

(Upon your request, UP-TIME will withhold your name/company name from any correspondence you send to UP-TIME to be publicized.)

***** A LITTLE HUMOR *****

SUCCESS-- few people learn form it but many learn from failure.

EXCUSES-- there aren't enough crutches in the world for all the lame ones.

THE HARDEST THING--to get is going.

IF YOU GROWL ALL DAY--you can expect to be dog-tired at night.

ENERGY CRISES-- our first was known as Monday morning.

TRICKS OF THE TRADE-- Some people are so busy learning them, they never learn the trade!

TRAVEL ADVICE-- He who goes fourth with a fifth on the Fourth may not come forth on the fifth.

MOTTO: If it is to be it is up to me.

TO BE PERSUASIVE We must be believable; to be believable we must be credible; to be credible we must be truthful.

COOPERATE! Remember the banana...everytime it leaves the bunch it gets skinned.

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Joys of Being An Editor

Getting out a paper is no picnic

If we print jokes, people say we are silly;

If we don't, they say we are too serious.

If we clip things from other magazines, we are too lazy to write them ourselves;

If we don't, we are too fond of our own stuff.

If we don't print contributions, we don't appreciate true genius,

If we do print them, the paper is filled with junk.

If we make a change in the other fellow's writeup, we are too critical.

If we don't we are asleep.

Now, like as not, someone will say we swiped this from some other magaizine "WE DID."
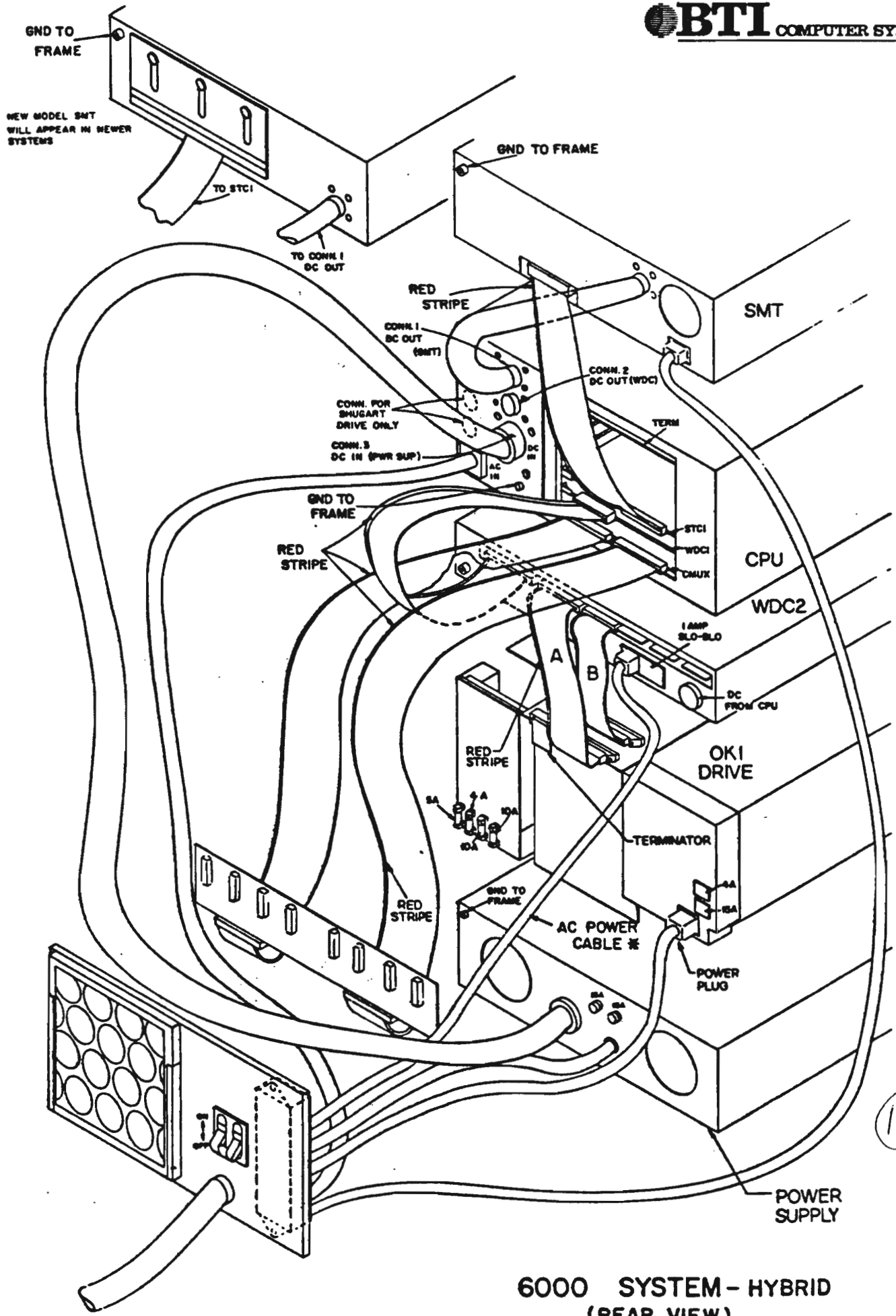
—*Western Association Newsletter*

(12)

***** BTI LINE DRAWINGS *****

- As mentioned in last month's newsletter, we will be printing a series of line drawings which are used by BTI's phone engineers. BTI has advised readers to make certain their system conforms to any given chart BEFORE pulling cables loose. Check first. These charts are the most common, but there are variations. If these drawings apply to your equipment, it would be a good idea to tape them inside the skins of your BTI Equipment for quick-ready reference.

SLIDE UP TO REMOVE STC 2.

GND TO FRAME

RED STRIPE

CONN. 1 DC OUT (SMT)

CONN. 2 DC OUT (WDC)

CONN. FOR SMUGART DRIVE ONLY

CONN. 3 DC IN (PWR SUP)

TERM

GND TO FRAME

RED STRIPE

STC1

WDC1

CMUX

CPU

WDC2

AC TO FAN

A   B

DC FROM CPU

RED STRIPE

OKI DRIVE

TERMINATOR

RED STRIPE

GND TO FRAME

AC POWER CABLE ※

POWER PLUG

POWER SUPPLY

6000 SYSTEM
(REAR VIEW)

GND TO FRAME

NEW MODEL SMT WILL APPEAR IN NEWER SYSTEMS

TO STC1

TO CONN. I DC OUT

GND TO FRAME

RED STRIPE

CONN. I DC OUT (SMT)

CONN. 2 DC OUT (WDC)

CONN. FOR SHUGART DRIVE ONLY

CONN. 3 DC IN (PWR SUP)

AC IN

DC IN

TERM

SMT

GND TO FRAME

RED STRIPE

STC1

WDC1

CMUX

CPU

WDC2

I AMP SLO-BLO

DC FROM CPU

A

B

RED STRIPE

OKI DRIVE

TERMINATOR

RED STRIPE

GND TO FRAME

AC POWER CABLE ✱

POWER PLUG

POWER SUPPLY

(4)
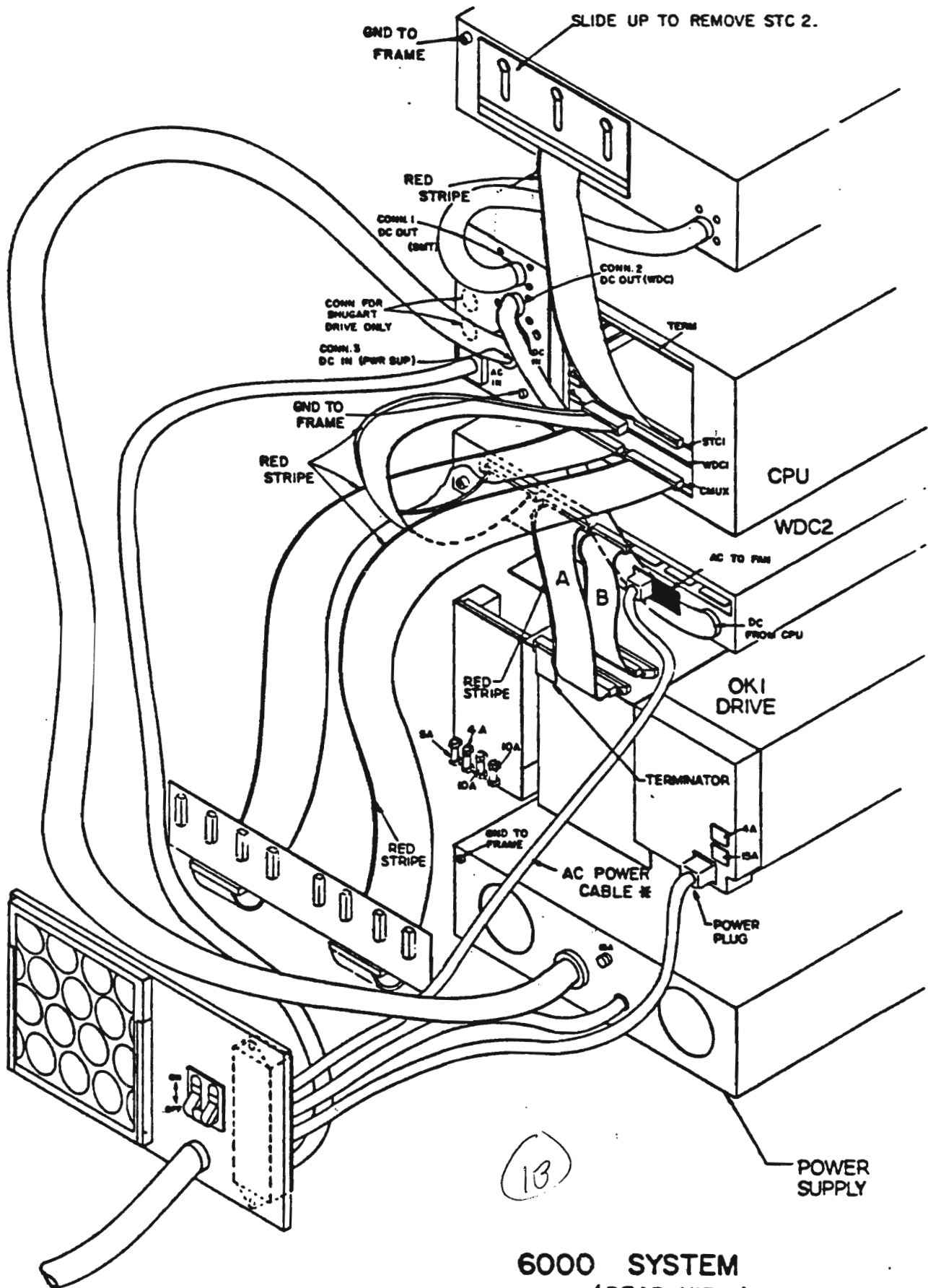
6000 SYSTEM – HYBRID
(REAR VIEW)

BATTERY SWITCH

PARITY INDICATOR

OFF/ON

BATTERY-LOGGER

PEBX MEMORY

MEMORY CONTROL — BLACK

MICROPROCESSOR — WHITE

ROM SEQUENCER — GREEN

INTERRUPT CONTROL — YELLOW

TO FRONT PANEL

6000 CPU (FRONT)
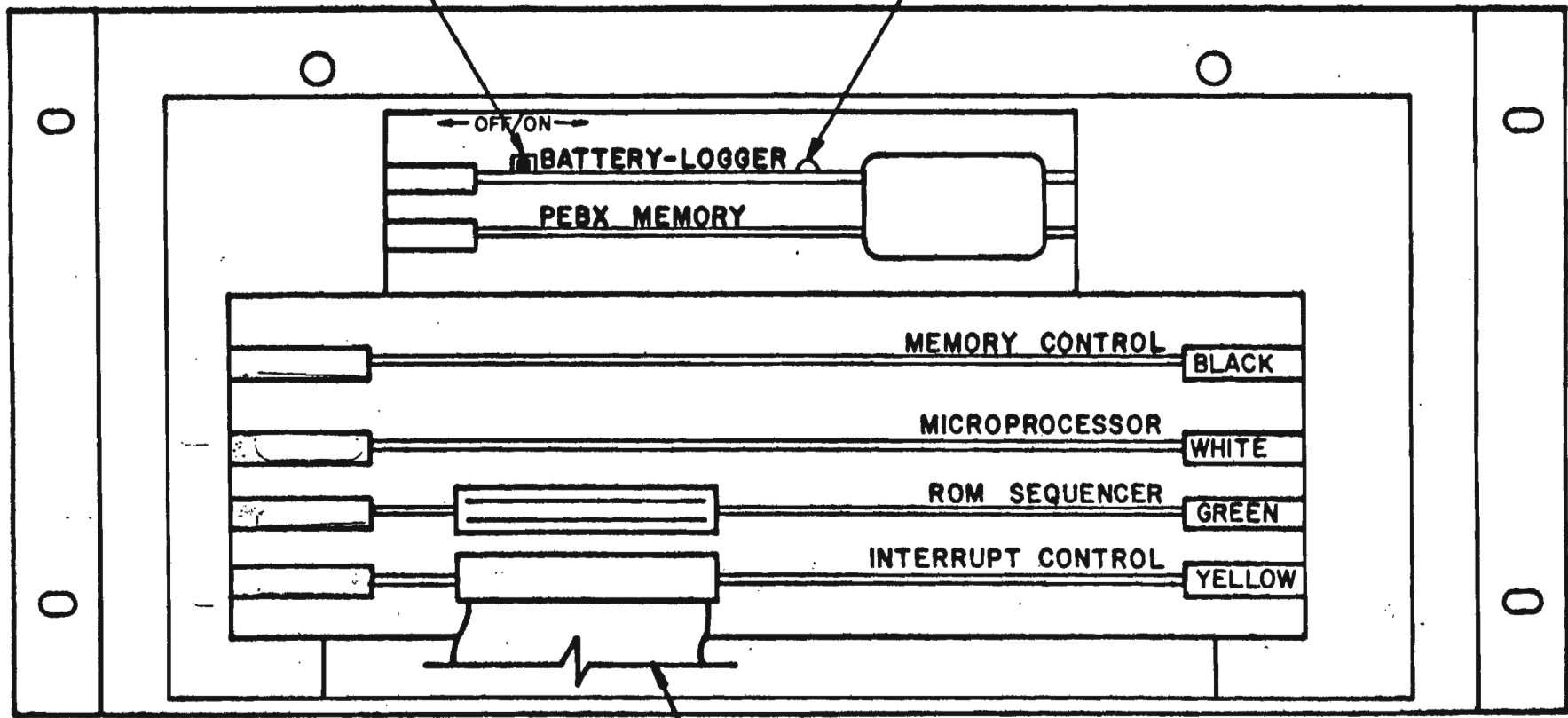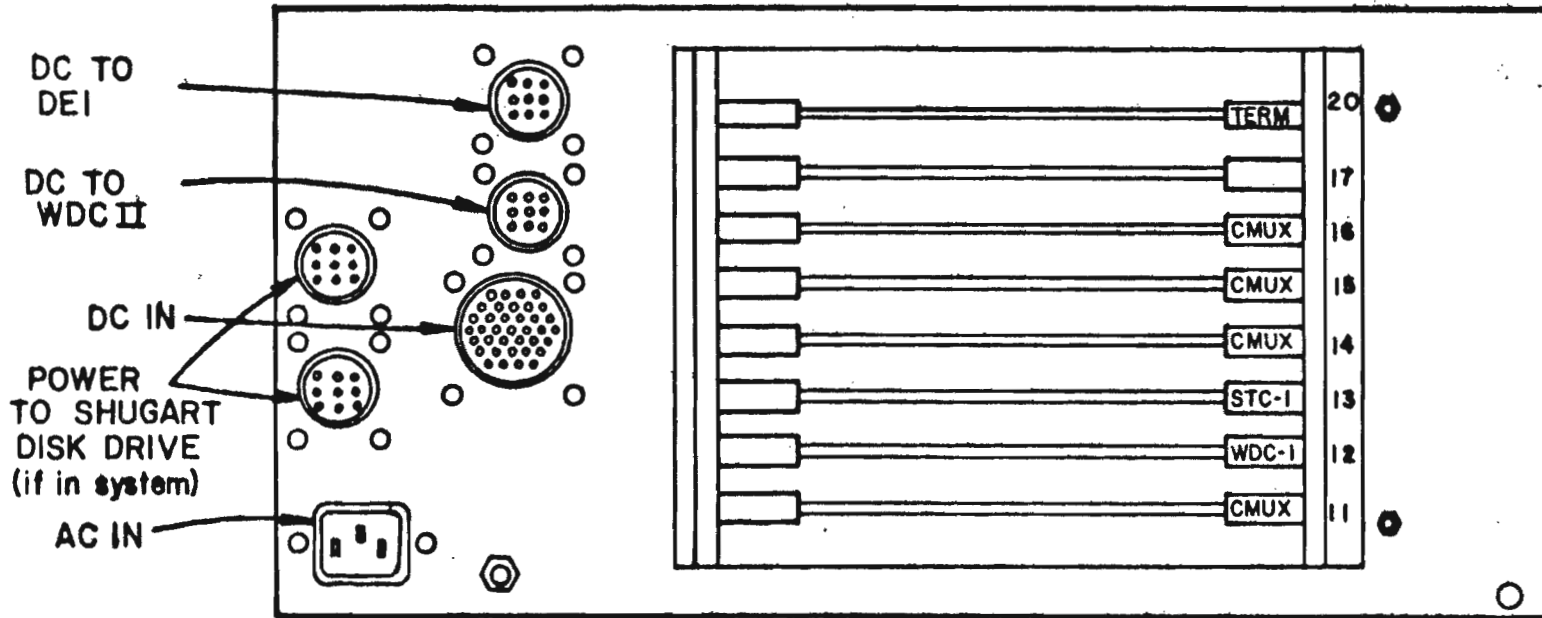
6000 CPU REAR VIEW

I/O CONFIGURATION

11	—	CMUX
12	—	WDC I (DISK CONTROLLER)
13	—	STC I (DEI CONTROLLER)
14-16	—	CMUX (IF APPLICABLE)
20	—	TERMINATOR

UP-TIME
(T.M.)

A PUBLICATION FOR USERS OF BTI COMPUTERS

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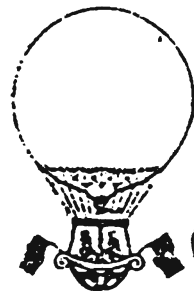
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*****   WELCOME NEW SUBSCRIBERS   *****

Joseph Yadvish, Jr. - Freight Traffic Services
Mel Kahler - Call-A-Computer, Inc.
David Erdman - Databank, Inc.
Norma Goranson - R. P. Fedder Corp.
Donna Brown - Southern Shores Realty Co.
Jeffery E. Mild - W.H. Hopmeier, Inc.
Mike Raborn - O-WP Data Processing

If you know of someone that might be interested in subscribing to
UP-TIME, please fill out the form at the end of this subscription
with their name and address and we will send them a complimentary
issue!

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*****   MARKETING - LET'S WORK TOGETHER !   *****

REMINDER:   Have you sent UP-TIME a copy of your Yellow Page or
            Magazine Ad?
            Or, something related to advertising for our January
            issue?

            We need your help!  Remember January is a "special"
            issue dealing with A-D-V-E-R-T-I-S-I-N-G !

It is important to hear from various UP-TIME Readers across the
country on this subject.

Anything on this subject would be appreciated (especially a copy
of your Yellow Page Ad)!  Dead-line for mail-ins on this subject
is January 10th...THANK YOU !!!!

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*****   **HEARD IT THROUGH THE GRAPEVINE**   *****

The 4800/6000 brochures are now available from your Regional BTI Office.....As of December 2, 1984, it appears that the 8000 versus the HP 68 is about to win the 4th quarter by a factor of 3....looking good BTI...Initial benchmark test result with 200 terminals simultaneously, indicates response time less than 1 second with 20 mgb of memory.....In addition to Sunnyvale, BTI now has field service and equipment depot offices officially open in Minneapolis MN, Ramsey NJ., and Atlanta GA.....The cost feasibility study is now underway to open the same type of office in Dallas.....Joe Walker now heads up the Minneapolis sales office with Francis Furtaw taking over the North-East.....Ralph Peterson has been officially dismissed from BTI and his accounts will be taken over by Gary Anderson in Dallas.....BTI is said to have January 1985 as the official kick-off month for its advertising/marketing campaign.....One of the first 6000's was installed by Gary and Jeff at NOITU in Jamaica, NY on December 2, 1984 with some initial problems.....However, as of Monday morning the system is reported as working well and the response time good during prime time heavy usage.....More on NOITU results later.....Apparently, there is a lot of work going on involving the use of BTI Computers for networking, uploading, and downloading information from micros such as the IBM PC's and XT's and Apples.....It is rumored that Mr. Bill O'Donnell, Jr., Regional Sales Manager of BTI/Atlanta is apparently conducting quite a network operation between Atlanta and Tampa due to his horticultural love of the Ivey in St. Petersburg .....We suspect that there will definitely be more on this story later.....

NEWS FLASH!!.....6000 upgrades will also give each Okidata 24 volume disk drive 25 volumes now.....Remember the 6000 is not fixed but virtual memory.....this means you will only use the memory you need. There is no wasted memory.....

-- COMPUTER ROOMS...AND WHY FOR THE BTI...PRO's and CON's --
By: Teresa Kreh

The decision to have a computer room or "special environment" created for your BTI equipment is left entirely up to you. However, BTI Field Engineers have verbally expressed opinions that computers which are kept in a well monitored and clean environment seem to have fewer service calls. Sound strange? It's true! The computer room dilemma has also become a show of pride to some companies...especially since the size and looks of computers are becoming so simplified. Potential customers visit computer companies and expect to see an impressive piece of machinery! Therefore, computer rooms are now providing two primary purposes:

1. Better up-time is available if your computer is housed in a "special environment".

2. Computer rooms give the company a sense of pride to both visitors and employees.

In setting up a computer room, you can become as creative and extravagant as costs will allow you. There are even special engineering companies in some areas that will take the specifications of your computer equipment and head up the whole project including line conditioning equipment, etc. On the other hand, you can be inexpensive about the whole ordeal and enjoy making your own enhancements and still come out on top!

The following are some tips you should be aware of in providing the proper "special environment" for your BTI.

HUMIDITY - The BTI, as well as any fine piece of working machinery, should not be exposed to extremely humid or dry conditions. Be expecially careful of this if your computer is located in a basement. Also, if you do not have enough humidity in the air, consider a humidifier. Gauges can be purchased or rented from security alarm companies locally to monitor humidity. NOTE: 50% humidity is ideal.

TEMPERATURE - The BTI computer can suffer damages to the tune of complete replacements from extreme heat. In addition to your current office air conditioning, backup air conditioning should be available. Liebert Corporation has a wide range of computer room air conditioners. NOTE: 68 degrees F. with minimum variance is ideal.

ALARM SYSTEM - This should include warnings for smoke, temperature, security, and moisture. Contact a security alarm company locally to monitor your computer room on a 24-hour basis. Be sure they have on hand telephone numbers of personnel that are able to correct the problem upon notification.

PROPER LIGHTING - If you are using DEI Tape Units, be sure lighting is overhead and not shining directly into the tape unit. This will prevent errors.

NOISE REDUCTION - If your BTI is located in a room without sound-absorbent walls or flooring, you might consider one of the following:
  1) Acoustical wall panels - Sonex Sound Absorption Panels
  2) Sound absorbant ceilings
  3) Computer room flooring

FURNITURE - Wood should not be used in the computer room if it can be avoided. Select tables and stands of metal or a durable plastic.

FLOORING - Do not select carpet with a nylon content. This promotes static in the computer room. The best type of flooring is tile or specially manufactured computer room flooring. Wood is not recommended.

TELEPHONES - It is a good idea to have a spare telephone jack installed in the computer room. This will allow you to hook up a telephone in the computer room in the event of unexpected down-time. BTI Engineers will be able to step you through procedures easier and quicker.

FIRE EXTINGUISHERS - Have on hand "dry" fire extinguishers. Check into ones especially formulated for computer rooms.

POWER CONDITIONERS & SURGE PROTECTORS - Converts "raw" electrical power into suitable power for computer equipment. Also, Liebert Corp. has available equipment specially for lightning hits.

COMPUTER ROOM SAFE - Fire-proof safe to store valuable off-line data.

CABLES - Be sure to separate your power and data cables. The data cables can pick up disturbances from the power cables. Also, be sure to keep cables away from flourescent lights. They do have damaging effects on cables.

As far as cons against having a "special environment"...we can't think of any!

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***** BTI TELEPHONE NUMBERS *****

Please only use the telephone numbers listed below to contact BTI. Any other telephone numbers previously printed are now invalid...

  408/733-4840 - Field Service...problems with your equipment.
  408/733-1122 - All other calls including requests for manuals, etc.

ADDS
SOMETHING EXTRA IN EVERYTHING WE DO
TERMINALS

Stocking Distributor:

Solutions, Inc.
3447 Josee Lane
Memphis, TN 38134
901-386-6484

⑥

VIEWPOINT®.
Best price / performance in a conversational terminal.

VIEWPOINT® /60.
A fully featured editing terminal.
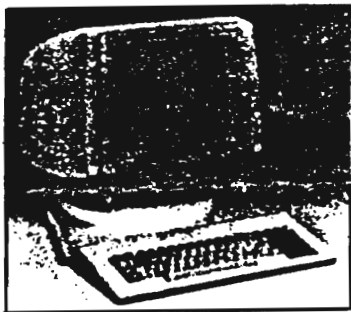
VIEWPOINT® /78
IBM functionality in monochrome and color.

VIEWPOINT® /Color.
The first truly low-cost color terminal.

A Commitment to Quality

Your get more than substantial savings when you purchase an ADDS Viewpoint product. You are buying the quality and reliability ADDS builds into every product we make.

At our highly-automated multimillion dollar facilities, we control every step of design and manufacture. We make our own printed circuit boards, our own cabinets, our own power supplies. And we test everything every step of the way.

Our unrelenting commitment to quality stands behind every ADDS product and is the meaning behind our motto: Something extra in everything we do.

ADDS
Applied Digital Data Systems Inc.
Subsidiary of NCR

***** HARDWARE CLASSIFIEDS *****

1. BTI 4000: 2 each 49 MB Drives, DEI Tape drive, 32 ports, Call Earnie Philips or Ellen Scott at 215/849-1200. Best reasonable offer. MARS/ASAP/PAYROLL/JOBCOSTING for BTI 4000 & 5000. MARS is a full DBMS, ASAP is an excellent accounting system, includes GL, A/P, A/R, Payroll, Job Costing. Call Earnie Philips/Ellen Scott 215/849-1200. (EXP 12-84)

2. BTI 4000 - Used on Reynolds & Reynolds VIM III System. Under BTI Maintenance. Will sell complete or individual components. Four Falcon Drives, 2 DEIs, 24 Ports. Make offer: Bob Rosenberg 513/541-3300. (EXP 2/85)

3. BTI 5000 - 60 Mb Okai Drive, 2 DEI's, 16 ports. Comes with license for EasyCalc and EasyWriter. $16,750.00. Call Mike Raborn, O-WP Systems, (305) 628-4717. (EXP 2/85)

4. BTI 4000 - Two Falcon Drives-10 Meg each, Two Dual Mags, Cartridge Tape Drives, 16 Ports. Hazeltine Compat. Terminals. Best offer - Call Jerry Mishork at Budget Car Rental (415) 877-4457. (EXP 2/85)

***** SOFTWARE ADVERTISING *****

SPREAD SHEET PROGRAM - Spread sheet of up to 99 columns and 676 rows. Each element may be either numeric or alphabetic. Insert/Delete columns or rows. Built in trignometric, average, standard deviation functions. Sum a range of row or columns. Much much more. Requires 8000 with Pascal. SAC Computer Center; Keene, TX 76059 (EXP 12-84)

MARS/ASAP/PAYROLL/JOB COSTING For BTI 4000 & 5000. MARS is a full DMBS, ASAP is an excellent accounting system and includes GL, A/P, A/R. Job Costing & Payroll. Call Earnie Philips or Ellen Scott at 215/849-1200. Best reasonable offer. (EXP 12-84)

EASYCALC - The electronic spreadsheet application for the BTI Computer Systems. Very fast in operation, it provides 40 Cols by 52 Rows. 10 levels of pre-set calculations. Many more features. $795.00 or $1,500.00 with EASYWRITER (see below). Call Mike Raborn, O-WP Systems, (305) 628-4717. (EXP 2/85)

EASYWRITER - Word processor for the BTI Computer Systems. Handles full-screen editing, scrolling, wordwrap, and many, many more features. Very fast in operation. $995.00 or $1,500.00 with EASYCALC (see above). Call Mike Raborn, O-WP Systems, (305) 628-4717. (EXP 2/85)

***** NEEDED *****

New BTI User - Interested in obtaining General Ledger, Construction/Job Costing, and Payroll programs. Should other user have these programs available and wish to negotiate a sales price please contact: Betty Jennette c/o Southern Shores Realty, P.O. Box 150, Kitty Hawk, NC 27949. Phone: (in NC) 1-800-682-2002, (all other areas) 1-800-334-1000. (EXP 2/85)

Want-to-Buy - DEI Tape Units (used). Contact: Trevor Evans, TUI Computer Services, 240 Great Circle Drive #326, Nashville, TN 37228. Phone: 615-242-1094 or 615-242-4477. (EXP 2/85)
<>

<<<<<<<<<<< NEXT MONTH'S FEATURE ARTICLE >>>>>>>>>>
----- YELLOW PAGE ADS -----

The Yellow Page Phone Directory is an excellent means of advertising your company services all year long! Through this article we will examine various yellow page ads and try to determine what causes a potential customer to contact you rather than the other guy?

Through this article, we hope to shed a little light in helping design the best possible Yellow Page Ad for the upcoming year.

ALL YELLOW PAGE ADS ARE INVITED AND ENCOURAGED TO BE SENT TO UP-TIME BEFORE JANUARY 15, 1985.
<>

***** 6000 LINE DRAWING CLARIFICATION *****

On page 13 of the November 1984 issue, the 6000 System (rear view) applies only to 6000 Systems using the REV 17 CPU. It does not apply to the new 6000 System recently released with mega memory.
<>

***** BTI LINE DRAWINGS *****

As mentioned in previous newsletters, we are printing a series of line drawings which are used by BTI's phone engineers. BTI has advised readers to make certain their system conforms to any given chart BEFORE pulling cables loose. Check first! These charts are the most common, but there are variations. If these drawings apply to your equipment, it would be a good idea to tape them inside the skins of your BTI Equipment for quick-ready reference.

SYSTEM CABINET

DRIVE

CPU
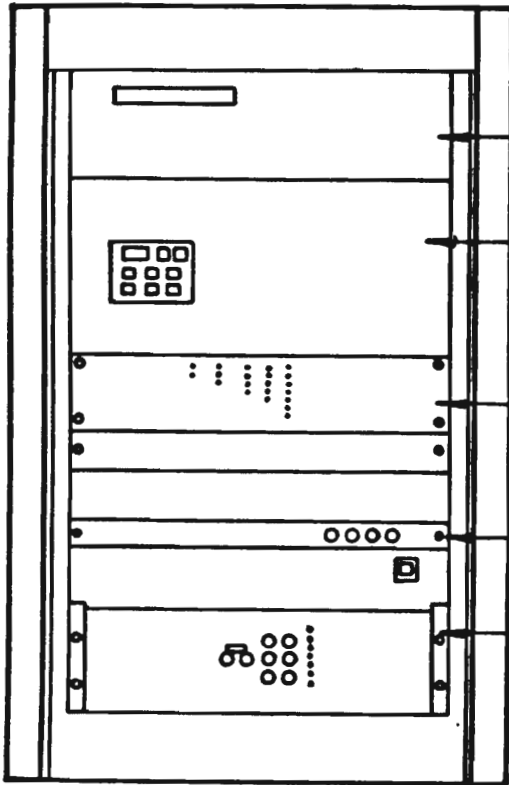
DISK
CONTROLLER

COM PANEL

DISK DRIVE

POWER
SUPPLY

FRONT VIEW
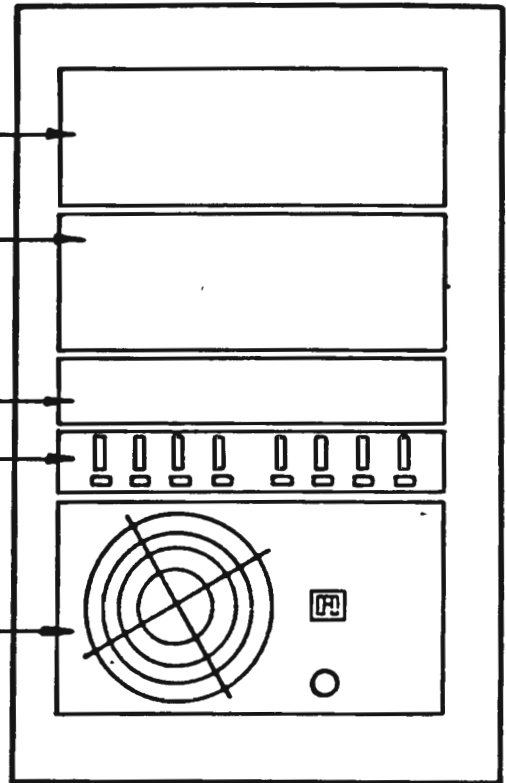
REAR VIEW

REAR VIEW
(WDC-2)

⑨

I/O   A   Bø   B1   B2   B3

1 AMP
SLO-BLO

RED STRIPE

BACK
(KENNEDY)
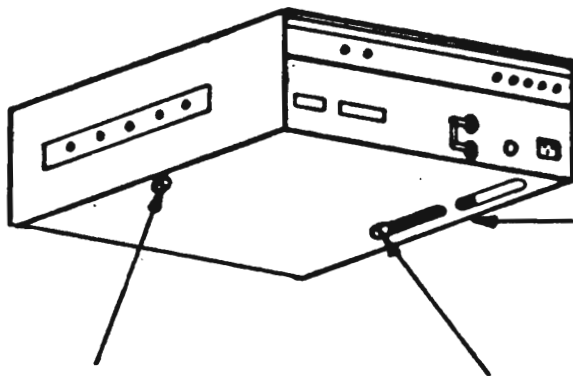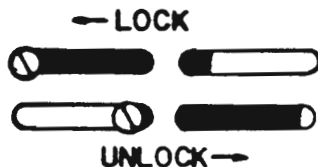
33   49

TRIP ON
3A
3AG

120V
60HZ
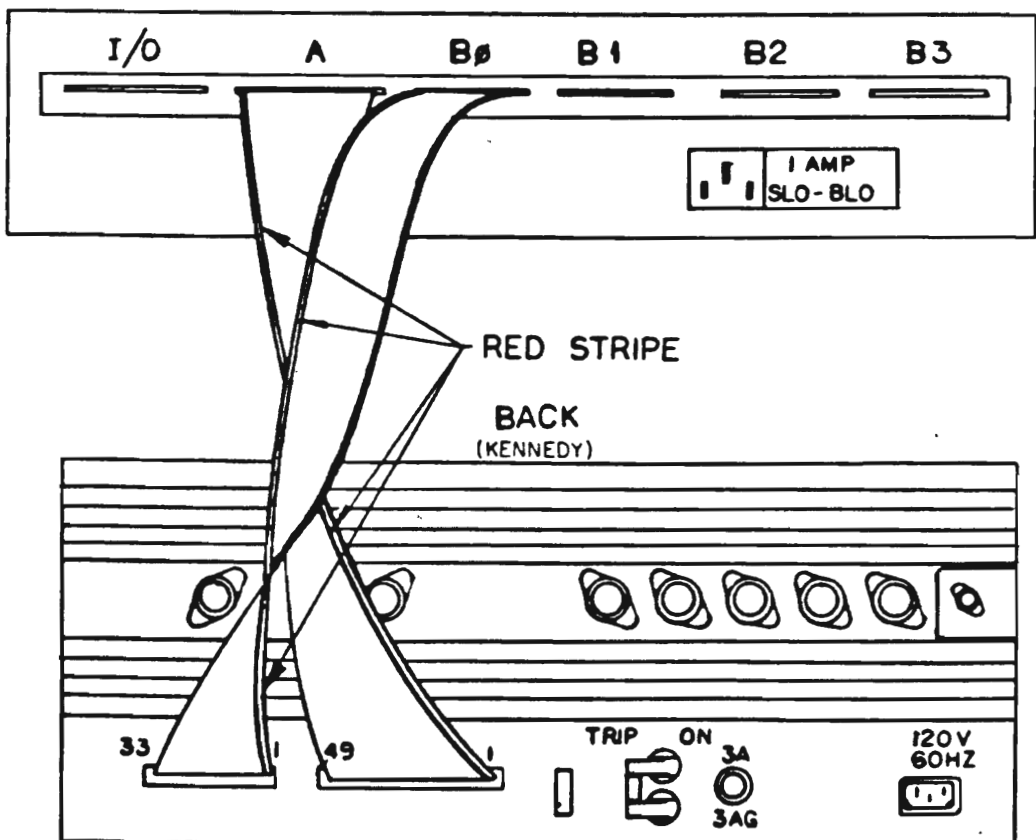
NOTE: 'A'&'B' CABLE HAS RED STRIPE ON LEFT AT <u>CONTROLLER</u> AND ON RIGHT ON <u>DRIVE</u>.

KENNEDY DRIVE
SHIPPING RESTRAINTS
DISK DRIVE MODEL 5436

THE FOLLOWING INSTRUCTIONS MUST BE FOLLOWED TO DISENGAGE SHIPPING RESTRAINTS.
FAILURE TO DO SO WILL RESULT IN DAMAGE TO THE DISK DRIVE.

NOTE: THIS RESTRAINT SCREW
IS NOT ON ALL DRIVES. TO
RELEASE RESTRAINT SCREW
(DO NOT REMOVE COMPLETELY)
AND SLIDE SCREW IN DIRECTION
OF ARROW, THEN RETIGHTEN.

UNLOCK

← LOCK

UNLOCK →

KENNEDY SYSTEM

BTI COMPUTER SYSTEMS

GROUND STRAPS

RED STRIPE

NOTE:
A & B CABLE HAS RED STRIPE ON LEFT AT CONTROLLER AND ON RIGHT AT DRIVE.

RED STRIPE

RED STRIPE

NOTE:
ON = RIGHT
OFF = LEFT
SWITCH IS SHOWN IN OFF POSITION.

SMT

CPU

WDC2

A   B

1A

KENNEDY DRIVE

FUSE

3AMP

15A

15A

POWER CORD

POWER SUPPLY

· REAR VIEW ·
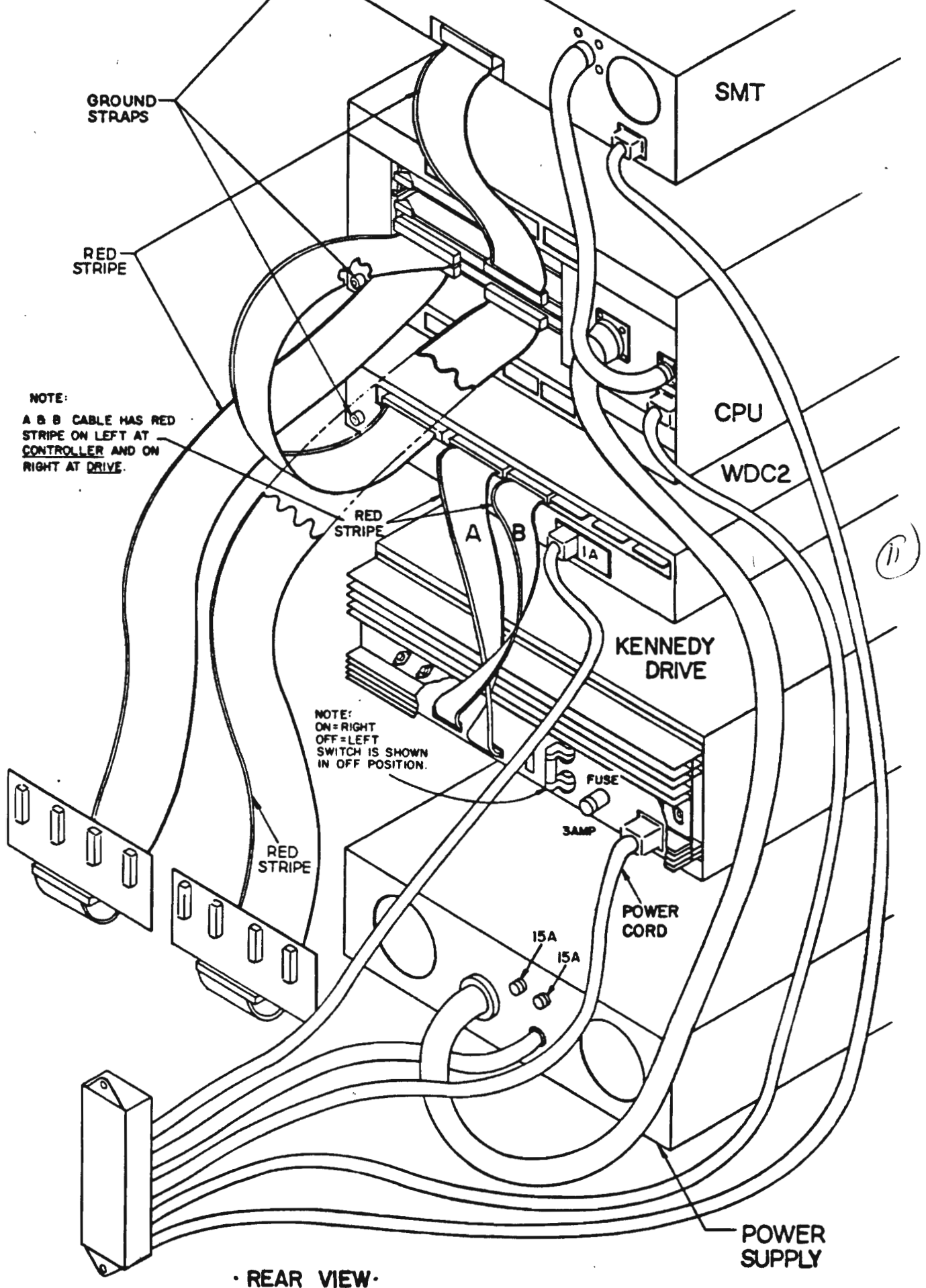
Happy New Year!

EASTERN REGIONAL USERS MEETING

Preparations are under way for the "Second Annual BTI Eastern Regional Users Meeting" tentatively scheduled for May 13-14, 1985 in St. Petersburg Beach, Florida.

Contact Bill O'Donnell, Jr at the BTI Atlanta Office for more details.

BTI Computer Systems
2030 Powers Ferry Road #126
Atlanta, GA 30339

(404) 951-0014

This program addresses most of the problems inherent in using the lesser-expensive personal computers as input terminals to BTI equipment.

I was getting tired of lugging a terminal and modem to and from the the plant whenever I wanted to work from home. So I went to the local computer store and bought a MicroModem II for my Apple][+. It worked just fine. But when I logged on at the office and examined the last night's work, I was disappointed. --Everything in the file I'd used was UPPER CASE. Not only that, the lines were of varying lengths. Even though I could send a line over 40 characters wide, it wrapped around on my TV at home. This made it hard to tell when 72 characters had gone by. Nuts!

The obvious solution was to buy an 80-character card for the Apple--one with the upper-and-lower case option. But after the

<CR> for more...

Micromodem purchase, all I had left in my wallet was a moldy BART ticket. Besides, if I went to 80 characters, I'd have to buy a hi-res monitor instead of using my color TV.

Several other BTI'ers also owned 40-column PC's. And it seemed as though we received one call per week from customers asking advice on how to use their Apple or Atari or TRS-80, or whatever, as a terminal with a direct hookup to a BTI 5000. My problem was not uncommon. Having more ingenuity than cash, this program was the solution.

Changing upper to lower case is relatively simple, and that's all that the original version did. The problem became more and more complex as all of the exceptions were figured in.

--Characters that aren't letters. ("@%&, 1234", etc.)
--Proper nouns, such as names.
--The first character of a sentence.
--Anything else you wanted left in caps.

<CR> for more...

With each revision, the program became longer and more complex-- you programmers know how that story goes. Then there was the remaining problem of short lines. As usual, a compromise had to be struck between a program that did everything perfectly, one that would fit in memory, one that worked reasonably fast, and one that was easy to revise, if not understand. We expect that the end users will make even more improvements.

At present, the program will take care of 95% of the gruntwork. Some polishing at a desk terminal with a word processor is usually necessary afterwards. There are very many unexpected character permutations possible in the English

language.

We tried to make alterations to the program as easy as
possible. It's broken up into modules. We put in lots of REMark
statements. If you do invent a better mousetrap, please send a
listing and explanation to UPTIME's program pool. We'd like to
see it, too.

<CR> for more...

The file "UPPER" in this account contains all-caps test
text. We suggest you run the program a few times using it as a
source. This will show you what doesn't work. Note the
capitalized "All" following "U.S.A.", for example. LOWERCASE
took the initial for a sentence-ending period. And the
substitution of " IBM" for " ibm" didn't occur, because the
source preceeded the phrase with a hyphen ("-IBM"). LOWERCASE
looks for literal equality before making the swap. Anyone who
has used the TEXT "CHA" command knows the unexpected
substitutions that can result. That's why the lowercased
recognition strings stored as data statements in lines 9500 and
after have to be as unique as possible. As you use the program
repeatedly, you'll add to this section, thus building up a "bank"
of proper nouns. --Your relatives' or fellow employees' names,
for example. Hopefully this will make it more useful over time.
If you run out of memory later on, decrease the size of the file
buffers DIMensioned in line 540.

(14)

<CR> for more...

The program might be useful in another way. It will even up
the borders on a body of text, making each line as narrow or wide
as you choose. TEXT will also do this, however.

We tested this program on the 5000 and 8000 with identical
results.

--Ray Smith
Customer Software Support
September, 1984

```
0550 INPUT "<CR> for more...",X$
0560 PRINT
0570 L=0
0580 REM -----
0590 X=N=S=0
0600 GOTO 410
0610 REM -----
0620 END

SOURCE LENGTH = 00788 WORDS
```

```
0010 REM SEPT. 1984
0020 REM -----
0030 REM
0040 REM      THIS IS AN ALTERED VERSION OF A UTILITY PROGRAM WHICH
0050 REM DUMPS THE CONTENTS OF A FILE TO A VIDEO TERMINAL.
0060 REM
0070 REM      IT IS BEING USED AS THE HELLO PROGRAM FOR SPECIAL TRANSFE
R
0080 REM ACCOUNT Z998. AT LOGON TO THAT ACCOUNT, THE PROGRAM NOTES
0090 REM FOR THE LOWERCASE PROGRAM ARE DISPLAYED. NATURALLY, IF
0100 REM SOMEONE CROSS-LOGS FROM A HIGHER ACCOUNT, THE HFR WILL NOT
0110 REM EXECUTE.
0120 REM
0130 REM      WITH MINOR ALTERATIONS, IT CAN BE USED AGAIN FOR EXAMINI
NG
0140 REM FILES. IT'S A LITTLE FASTER AND EASIER THAN $$$F-LIST.
0150 REM
0160 REM      RAY SMITH, BTI CSS X536
0170 REM
0180 REM -----
0190 REM
0200 DIM A$(254),F$(20)
0210 DIM #1(30)
0220 REM
0230 L=S=N=X=0
0240 REM -----
0250 REM FOR USE ON OTHER FILES OF CHOICE, KILL NEXT LINE, CHANGE LINE
 AFTER
0260 F$="LOWERDOC"
0270 REM INPUT "FILE NAME" ( <CR> TO END ),: ",F$
0280 REM
0290 IF NOT LEN(F$) THEN END
0300 IF F$="END" THEN END
0310 REM ----- NAME OK, NOW LINK IT -----
0320 FILE #1,3:F$
0330 IF TYP(-1) THEN 330
0340 PRINT "FILE "F$" NOT THERE OR NOT SHARED."
0350 PRINT
0360 GOTO 270
0370 REM
0380 FILE #1:F$
0390 PRINT
0400 REM ----- READ/PRINT LOOP TO EOF SOURCEFILE -----
0410 IF TYP(1)=1 THEN N=1
0420 IF TYP(1)=2 THEN S=1
0430 IF TYP(1)=3 THEN 620
0440 IF N THEN READ #1:X
0450 IF S THEN READ #1:A$
0460 REM BUMP LINE COUNTER
0470 L=L+1
0480 REM
0490 IF N THEN PRINT X
0500 IF S THEN PRINT A$
0510 REM
0520 REM ----- STOP THE PAGE EACH 20 LINES -----
0530 IF L<20 THEN 530
0540 PRINT
```

15

```
0020 REM LATEST AUG 31, 1984
0100 REM --------------------------------------------------
0110 REM
0120 REM     Special-purpose text editor originally designed for use
0130 REM on files input from upper-case-only personal computers.
0140 REM
0150 REM     Changes all upper-case letters in a text file to lower
0160 REM case.  Non-alphabetics are untouched.  Floating-point
0170 REM numbers are carried over to the target as such.
0180 REM
0190 REM     Words to be left as upper case can be entered as data
0200 REM strings, line 9500 and after.
0210 REM
0220 REM     Characters preceeded by a period and two spaces,
0230 REM characters between quotes, and characters preceeded by
0240 REM five spaces are left as is.
0250 REM
0260 REM     User may adjust output line width.
0270 REM
0280 REM     This program is in the public domain.  No warranties or
0290 REM guarantees are implied.
0300 REM
0310 REM     Reference UPTIME issue #_____
0320 REM
0330 REM     Ray Smith, BTI CSS (408) 733-1122 ext. 536
0340 REM
0350 REM --------------------------------------------------
0400 REM
0410 REM TEST FOR CAPITAL ALPHABETIC. 1=YES  ,
0420 DEF FNA(X)=(X>64 AND X<91)
0460 REM
0500 REM ----- ROOM SERVICE -----
0510 REM
0520 DIM A$[254],B$[254],C$[254],D$[254],F$[254],G$[254],X$[3]
0540 DIM #1[27],#2[27]
0560 REM
0580 REM INITIALIZE FLAGS. 1= YES. P1=PERIOD, Q1=SKIPOVER, S1= MULTI-SPACES
0600 REM W IS COLUMN WIDTH
0620 S1=Q1=W=0
0630 REM
0640 REM FIRST CHARACTER ENCOUNTERED HAS TO BE A CAPITAL. SO SET PERIOD FLAG
0660 P1=1
0680 REM
1000 REM ----- MAIN DRIVER MODULE -----
1020 REM
1040 REM FORMFEED
1060 PRINT CHR$(12)
1080 REM GET SOURCE FILE NAME, LINK
1100 GOSUB 1500
1120 REM GET TARGETFILE NAME, LINK IT ALSO
1140 GOSUB 2000
1160 REM CONCATENATE LINES PARAMETER ENTRY
1180 GOSUB 3000
1200 REM SHOW THE LINES PARAMETER ENTRY
1220 GOSUB 3500
1240 REM SCAN THE FILE, FRONT TO BACK
```

```
1260 GOSUB 4000
1280 REM EOF SOURCEFILE
1300 PRINT #2;END
1320 FILE #1,3;""
1340 FILE #2,4;""
1360 REM FORMFEED
1380 IF S THEN PRINT CHR$(12)
1400 REM DO IT AGAIN
1420 GOTO 1000
1440 REM
1500 REM ----- SOURCEFILE NAME, LINKAGE -----
1520 REM
1540 INPUT "Source text filename? (<CR> to Quit) : ",F$
1560 IF NOT LEN(F$) THEN END
1580 FILE #1,4;F$
1600 IF TYP(-1) THEN RETURN
1620 PRINT "FILE "¡F$¡" NOT THERE OR NOT SHARED."
1640 GOTO 1540
1660 REM
2000 REM ----- GET DESTINATION FILE -----
2020 PRINT
2040 PRINT "(Enter <CR> to use 'SCRATCH'...)"
2060 INPUT "Target (lower case) filename? :",G$
2080 IF NOT LEN(G$) THEN G$="SCRATCH"
2100 IF G$#F$ THEN 2180
2120 PRINT "The source can't be the same as the target.  Try again..."
2140 REM
2160 IF TYP(-2) THEN RETURN
2180 FILE #2,4;G$
2200 IF TYP(-2) THEN RETURN
2220 PRINT "Target file "¡G$¡" not there or not shared."
2240 PRINT "Attempting to create..."
2260 FILE #2,4;""
2280 REM SAME LENGTH AS ORIGINAL, PLUS 1
2300 FILE #SEC(-1)+1,7;G$
2320 FILE #2,4;G$
2340 IF TYP(-2) THEN RETURN
2360 PRINT "Unable to create "¡G$¡".  Try another name..."
2380 GOTO 2020
2400 REM
3000 REM ----- CONCATENATE? -----
3020 PRINT
3040 PRINT "(Enter <CR> to leave as is...)"
3060 INPUT "Finished line width? (20-120): ",X$
3080 IF X$="" THEN X$="0"
3100 IF ASC(X$)<48 OR ASC(X$)>57 THEN 3520
3120 W=VAL(X$)
3140 RETURN
3160 REM
3500 REM ----- SHOW LINES? -----
3520 PRINT
3540 INPUT "Show the lines after conversion? (Y/N) :",X$
3560 REM S IS SHOW FLAG, 1=YES
3580 S=0
3600 IF X$="Y" THEN S=1
3620 IF X$="Y" THEN S=1
```

LOWERCASE.BSXSRC
Sunday, September 2, 1984 12:48:43 pm PDT
Page 3

LOWERCASE.BSXSRC
Sunday, September 2, 1984 12:48:43 pm PDT
Page

```
3630 PRINT CHR$(10)
3640 RETURN
3660 REM
4000 REM ----- CONVERSION LOOP, TO EOF SOURCEFILE -----
4005 REM
4010 G$=""
4020 REM LO IS LINE COUNTER
4040 LO=1
4060 REM
4080 REM STRING NEXT, OR NUMBER, OR END OF FILE?
4100 GOTO TYP(1) OF 4300,4500
4120 REM EOF.  IF CONCATENATING, FLUSH THE BUFFER (G$)
4140 IF NOT W THEN RETURN
4160 REM FORCE-FLUSH THE LAST LINE
4180 B$=G$
4200 GOSUB 9200
4220 RETURN
4240 REM ---
4300 REM NUMBER IS NEXT
4340 READ #1:X
4360 IF S THEN PRINT USING "#4D2X":LO
4380 IF S THEN PRINT X
4400 PRINT #2:X
4420 GOTO 4080
4500 REM -----
4520 REM STRING NEXT
4540 READ #1:A$
4560 L=LEN(A$)
4580 REM LOWERCASE THE SOURCE LINE
4600 GOSUB 5000
4620 REM
4640 B$=A$
4660 REM CHECK FOR SPECIAL WORDS
4680 L=LEN(B$)
4700 IF NOT L THEN 4800
4720 D$=B$
4740 GOSUB 7500
4760 REM
4780 REM IF USER ASKED FOR IT, CONCATENATE LINES
4800 IF W THEN GOSUB 8500
4820 REM
4840 REM PUT IT ON DISK
4860 GOSUB 9200
4880 GOTO 4080
4900 REM
5000 REM ----- CONVERT A$ TO LOWER CASE -----
5020 REM
5040 X=1
5060 REM TREAT BLANK LINE AS A PERIOD
5080 IF NOT L THEN P1=1
5100 REM
5120 REM END OF THIS SOURCE LINE?
5140 IF X>L THEN RETURN
5160 REM NOT YET.
5180 A=ASC(A$[X])
5200 REM ALPHABETIC CHAR?
5220 IF FNA(A) THEN 5500
5240 REM
5260 REM PERIOD, QUESTION OR EXCLAMATION MARK
5280 IF A=46 OR A=63 OR A=33 THEN GOSUB 6000
5300 REM
5320 REM SPACE
5340 IF A=32 THEN GOSUB 6500
5360 REM
5380 REM FORCED SKIPOVER TRIGGER (#)
5400 IF A=35 THEN GOSUB 7000
5420 REM
5440 REM IF NOT A-Z, SKIP THIS CHAR, LEAVE FLAGS ALONE.
5460 IF NOT FNA(A) THEN 5600
5480 REM FLAG SET? SKIP THIS CHAR, RESET THE FLAG
5500 IF P1 OR Q1 OR S1 THEN 5560
5520 PRINT USING "A",A$[X:X]:CHR$(A+32)
5540 REM RESET FLAGS
5560 P1=S1=0
5580 REM BUMP THE CHARACTER COUNTER
5600 X=X+1
5620 GOTO 5140
5640 REM
6000 REM ---PERIOD, QUESTION, EXCLAMATION, OR BLANK LINE ---
6020 P1=1
6040 RETURN 5600
6060 REM
6500 REM ----- SPACE ENCOUNTERED ---
6520 REM
6540 REM FOUR SPACES, THEN LEAVE THIS ONE CAPITALIZED
6600 IF X>4 THEN IF A$[X-4:X-1]="    " THEN S1=1
6620 RETURN 5600
6640 REM
7000 REM ----- FORCED SKIPOVER.  LOWER-CASING OFF UNTIL NEXT ONE HIT ---
7020 REM
7040 REM LAST CHAR? ONLY CHAR THIS LINE?
7060 IF X=L THEN 7200
7080 REM
7100 REM DELETE THE FORCING CHARACTER
7120 A$[X]=A$[X+1]
7140 X=X-1
7160 GOTO 7340
7180 REM
7200 REM SPECIAL CASES, ONLY ONE IN LINE?
7220 IF LEN(A$)>1 THEN 7300
7240 A$=""
7260 GOTO 7340
7280 REM LAST CHAR
7300 A$=A$[1:X-1]
7320 REM LINE IS SHORTER NOW
7340 L=L-1
7360 REM FLIP (OR FLOP) THE SKIPOVER FLAG
7380 Q1=ABS(Q1-1)
7400 RETURN 5600
7420 REM
7500 REM ----- CHECK LINE FOR PRESENCE OF SPECIAL WORDS -----
7520 REM PO IS A PASSES-PER LINE COUNTER.  TWO PASSES WITH NO MATCH,
```

```
7540 REM THEN GET A NEW LINE.
7560 PO=0
7580 REM
7600 REM MAKE AN ALL-LOWER-CASE COPY OF B$ TO AVOID MISSED COMPARISONS
7620  FOR X=1 TO L
7640  A=ASC(B$[X])
7660   IF FNA(A) THEN PRINT USING "A",D$[X:X];CHR$(32+A)
7680  NEXT X
7700 REM ---
7720 RESTORE 9500
7740 READ A$,C$
7760 REM
7780 P=POS(D$,A$)
7800 IF P THEN 8220
8000 REM---
8020 REM NO MATCH. GET NEXT SPECIAL WORD, IF ANY ARE LEFT
8040 IF TYP(0)#3 THEN 7740
8060 REM NO MORE DATA, BUMP THE PASS COUNTER
8080 PO=PO+1
8100 REM IF SECOND TIME AROUND FOR THIS LINE, IT'S FINISHED
8120 IF PO<2 THEN 7720
8140 RETURN
8200 REM ---
8220 REM REPLACE LOWERCASED WORD WITH ORIGINAL FROM DATA STATEMENTS
8240 PO=0
8260 C=P+LEN(C$)-1
8280 B$[P:C]=C$
8290 REM CHANGE LOWERCASE COMPARISON LINE TOO, TO AVOID INFINITE LOOP
8300 D$[P:C]=C$
8320 GOTO 7720
8340 REM
8500 REM ----- CONCATENATE THIS LINE (B$) WITH LAST ONE (D$) -----
8510 REM
8520 F$=B$
8530 REM HERE ARE THE CONDITIONS FOR FLUSHING CONCATENATED LINE TO FILE
8540 REM THIS NEW LINE IS BLANK
8550 IF F$#"" THEN 8640
8560 B$=G$
8570 G$=""
8580 REM SEND THE BLANK TO DISK ALSO
8590 GOSUB 9200
8600 B$=""
8610 GOSUB 9200
8620 RETURN 4080
8630 REM ---
8640 REM THE FIRST CHAR OF NEW LINE IS A SPACE
8650 IF F$[1:1]#" " THEN 8710
8660 B$=G$
8670 GOSUB 9200
8680 G$=F$
8690 RETURN 4080
8700 REM ---
8710 REM END OF EXCEPTIONS. GIVE ME ONE LONG LINE TO START
8720 REM START BY STRIPPING TRAILING SPACES FROM F$
8730 IF F$[LEN(F$)]#" " THEN 8770
8740 F$=F$[1:LEN(F$)-1]
8750 GOTO 8730
8760 REM
8770 REM ADD A SEPARATING SPACE (OR TWO, IF LAST CHAR WAS PERIOD OR "?")
8780 IF NOT LEN(G$) THEN 8820
8790 A=ASC(G$[LEN(G$)])
8800 IF A=46 OR A=63 OR A=33 THEN G$[LEN(G$)+1]=" "
8810 G$[LEN(G$)+1]=" "
8820 G$[LEN(G$)+1]=F$
8830 REM
8840 REM IF STILL TOO SHORT, GET MORE AND TACK THAT ON TOO
8850 IF LEN(G$)<W THEN RETURN 4080
8860 REM
8870 REM LONG ENOUGH TO WORK WITH.  SEPARATE A LINE < W
8880  FOR X=W TO 1 STEP -1
8890   B$=G$[1:X]
8900   A=ASC(B$[X])
8910   IF A=32 OR A=33 OR A=45 OR A=36 OR A=63 THEN 8980
8920  NEXT X
8930 REM CAN'T BE SPLIT, FLUSH AS IS
8940 B$=G$
8950 G$=""
8960 RETURN
8970 REM
8980 G$=G$[X+1]
8990 GOSUB 9200
9000 REM G$ MAY STILL BE VERY LONG
9010 IF LEN(G$)<W THEN RETURN 4080
9020 GOTO 8870
9030 REM
9200 REM -----PRINT FINISHED LINE TO FILE AND IF NEC., TO TERMINAL -----
9220 REM
9240 IF S THEN PRINT USING "#4D2X";LO
9260 IF S THEN PRINT B$
9280 PRINT #2;B$
9300 LO=LO+1
9320 RETURN
9340 REM
9500 REM ----- SPECIAL WORDS TO BE SUBSTITUTED INTO LOWERCASE LINE ---
9520 DATA "bti","BTI"
9540 DATA " i "," I ","sunnyvale","Sunnyvale"
9560 DATA " califor"," Califor"
9580 DATA " j. "," J. "
9600 DATA " ibm"," IBM"
9620 DATA "u.s.a.","U.S.A."
9640 DATA " ray"," Ray"
9660 DATA " smith"," Smith"
9680 DATA "spock lives!","SPOCK LIVES!"
9998 REM
9999 END
```

CAT-#Z998

(040003) 00212   *HERE'S WHATS IN THE DUMMY ACCOUNT, I GET UP BY YO!*

S/N	NAME	CODE	LEN.	SECT.	SAVED	ACCESS	USE	
013	HPR.Z998	P	00809	0007	246/84	246/84	00000	00213
012	LOWERDOC	F	00025	0026	246/84	246/84	00000	01170
00002	UPPER	F	00010	0011	246/84	246/84	00000	00177
00001	LOWERCASE	P	03789	0030	244/84	244/84	00000	00141

TOTAL STORAGE = 00074 SECTORS

GET-FILEDUMPER
RUN   *HERE'S A LISTING OF FILE "UPPER" WHICH CONTAINS*
FILEDUMPER   *RAW TESTING MATERIAL USED BY "LOWERCASE"*

File name? (<CR> or END to QUIT): #Z998,UPPER

THIS FIRST LINE HAS NO PERIOD, TO CHECK CAPS-AFTER-INDENTATIONS
     THIS LINE IS INDENTED BY FIVE SPACES.
THIS LINE HAS #TWO# EXAMPLES OF A #FORCED SKIPOVER#.
THIS LINE HAS "TWO" EXAMPLES OF "QUOTES".
THE NEXT LINE IS BLANK, TO TEST FOR CAPS-AFTER-SKIPPED LINE

SAME SPECIAL WORD - I - USED TWICE IN A LINE - I -.
U.S.A. ALL THE WAY
     MY NAME IS RAY SMITH, AND I WORK AT BTI IN SUNNYVALE, CALIFORNIA.
BTI, BY THE WAY, STANDS FOR BETTER-THAN-IBM.
@$%^&*()_-+={}[]:;'<>,1234567890
  THIS A QUESTION LINE?
B! AND HERE'S AN EXCLAMATION POINT!
CONCATENATION TEST.
A LONGER LINE THAN THE LAST.
AN EVEN LONGER LINE THAN THE LAST.
THIS LINE IS LONGER THAN THE LAST FOUR LINES.
IF A LINE CANNOT LOGICALLY BE SPLIT UP, IT WILL BE FILED AS IS.
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
****

(15)

<CR> for more...

[CAPITAL CHARACTERS WITHIN NON-ALPHABETIC CHARACTERS]
THE MORE DATA STATEMENTS, THE SLOWER THE EXECUTION SPEED.
THIS PROGRAM CAN BE USED ON ANY TEXT FILE TO BUILD OUT LINES
TO SPECIFIED WIDTH. Here's what happens if lower-case text
is encountered. A MINUS SIGN WILL BE INTERPRETED AS A HYPHEN,
AND THUS BE USED AS A LINE-SPLITTER. -10,-100,-1000,-1000000
LAST SOURCE LINE.

File name? (<CR> or END to QUIT):

DONE
BYE

00.13 HOURS CONNECT TIME

```
Source text filename? (<CR> to Quit) : UPPER

(Enter <CR> to use 'SCRATCH'...)
Target (lower case) filename? :
Target file SCRATCH not there or not shared.
Attempting to create...

(Enter <CR> to leave as is...)
Finished line width? (20-120): 60

Show the lines after conversion? (Y/N) :Y


    1   This first line has no period, to check caps-after-
    2   indentations
    3       This line is indented by five spaces.  This line has
    4   TWO examples of a FORCED SKIPOVER.  This line has "two"
    5   examples of "quotes".  The next line is blank, to test for
    6   caps-after-skipped line
    7
    8   Same special word  - I - used twice in a line - I -.
    9   U.S.A. All the way
   10       My name is Ray Smith, and I work at BTI in Sunnyvale,
   11   California.  BTI, by the way, stands for better-than-ibm.
   12   @$%^&*()_-+={}[]:;'<>,1234567890 Is this a question line?
   13   Yes! And here's an exclamation point!  Concatenation test.
   14   A longer line than the last.  An even longer line than the
   15   last.  This line is longer than the last four lines.  If a
   16   line cannot logically be split up, it will be filed as is.
   17   Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
   18   *************************************************************
   19   [ capital characters within non-alphabetic characters] the
   20   more data statements, the slower the execution speed.  This
   21   program can be used on any text file to build out lines to
   22   specified width. Here's what happens if lower-case text is
   23   encountered.  A minus sign will be interpreted as a hyphen,
   24   and thus be used as a line-splitter. -10,-100,-1000,-
   25   1000000 Last source line.
```

UP-TIME
(T.M.)

A PUBLICATION FOR USERS OF BTI COMPUTERS
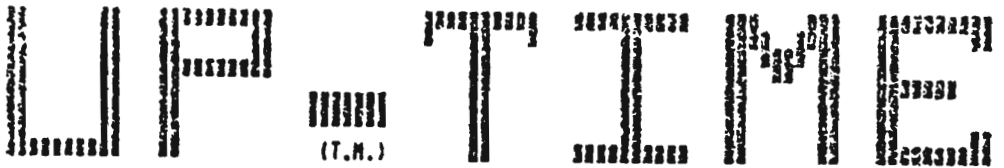
```
##############################################################
#                                                            #
#                                                            #
#                   TABLE OF CONTENTS                        #
#                                                            #
#                                                 Page       #
```

```
#                                                            #
##############################################################
```

***** WHEN DOES YOUR SUBSCRIPTION EXPIRE ? *****

Please check the address label on the backside of the last page
of this newsletter. Above your name, you will see your
expiration date. To continue receiving UP-TIME without
interruption, be sure to fill out the last page with any changes
in your address, etc. and return it to us along with your check
for $44.00. That's it !!

If you know of someone that might be interested in subscribing to
UP-TIME, please fill out the form at the end of this subscription
with their name and address and we will send them a complimentary
issue!

<>

***** 8000 FACTS *****
----- DID YOU KNOW? -----

Contrary to some beliefs, the BTI 8000 is not a spin-off of any
previous BTI Computer. It is a completely new product. To date,
there are approximately 40 of the BTI 8000s in use. It is
interesting to note that most of the 8000s were purchased by
companies that had been a user of previous BTI models. The 8000
uses BASIC-X, therefore upgrade from a earlier BTI model to an
8000 is minimal. To date, the CSS division of BTI in Sunnyvale
continues to study special purpose programs and suggested
enhancements from current users.

<>

***** A LITTLE HUMOR *****
----- COMMON JARGON -----

ACCESS (verb). Connect to re-
mote computer database (q.v.)
usually by telephone.

A.I. Short for Artificial Intelli-
gence; denotes software which is
indeed artificial, but not notably
intelligent.

ALVEY DIRECTORATE. QUANGO set up
by Government to solve problem of
unintelligent A.I. by throwing
money at it.

BUG-FREE. Error free. Mythical.

BACKUP (verb). Make copy
of program in case original
gets sat upon. Also noun
denoting after-sales service,
normally conspicuous by
absence.

BIT. Short for binary digit;
the 1 or 0 which constitutes the
smallest piece of information
manipulated by a computer.

BUG. Error in program, usually
difficult to eliminate without
introducing more of same.

<>

CREDITS:
Being interested in the most effective and economic means of
advertising for our company, this office has done much research
on the Yellow Pages. In addition, we often suggest types of
advertising for various companies in which TUI Computer Services
acts as a consultant.

Mr. Jim Windsor with Midwest Timesharing Systems in Covington, KY
also has shared his Yellow Page experience with us by writing a
very informative letter and by sending us a copy of his ad
appearing in the Yellow Pages. In addition, we have discussed
this topic with a few of you over the telephone recently. For
those of you who have played a part in the presentation of this
article, we thank you!

<>

"HOW SERIOUS ARE YOU ABOUT GETTING NEW PROSPECTIVE CUSTOMERS ??"

New computer companies are VERY serious. It is the difference in
"making it" in the computer world today or not! Name exposure and
advertising for specific services at the most economical price is
imperative. If you placed the same ad in the local newspaper and
ran it for 365 days/year...how much would it cost? Significantly
more than Yellow Pages. Some points to consider are:

        Accepted...4 out of 5 adults use them - 34 times per person/year
        Circulated...Reaches every telephone customer - even newcomers
        Time and Energy Saving...Shopping by telephone
        Inexpensive...Lower than most media on a per capita exposure
        On Duty Day and Night...Your ad seen 365 days a year

WHAT DO I CONSIDER IN WORKING UP AN AD?

Be informative...or you can defeat your purpose.
Tips to consider are:
        WHO........you are
        WHAT.......you sell
        WHERE......you are located
        WHEN.......you are open for business
        and
        WHY........they should select you

Don't crowd the ad up...remember pictures and flow charts are a
lot more eye catching than a lot of words. ENTICE readers to
CALL you. Don't try to explain your entire company services
through an ad.

Yellow Page offices have account representatives that will be very helpful in putting your ad together. They have a staff of graphic artist and writers that will take an idea and develop it into an ad or they will refine the copy that you have created. This service could even be helpful in creating your logo, as in the case of Midwest Timesharing Systems, Inc.

"On line computer processing power in your office"

COMPLETE LINE OF BUSINESS APPLICATION SOFTWARE

● ORDER ENTRY/INVENTORY CONTROL SYSTEM WITH SALES ORDER PROCESSING AND SALES ANALYSIS ● FULLY INTEGRATED ACCOUNTING PACKAGE- FEATURING GENERAL LEDGER, ACCOUNTS RECEIVABLE, PAYROLL ACCOUNTS PAYABLE ● JOB COSTING

BTI COMPUTER SYSTEMS
CRESCENT SPRINGS, KY

However, caution should be used in working with your account representative. Remember, he does not know your services or the computer industry as well as you do. He is mearly a design specialist to assist you.

TO USE COLOR "RED" OR NOT TO USE COLOR "RED"

Recently, the Yellow Pages incorporated the color "red" in selected ads as an option for stronger impact and eye appeal. In a recent survey, the following
results were recorded upon asking 100 customers...

"TO WHAT EXTENT DO YOU LIKE THE USE OF COLOR RED IN THE YELLOW PAGES?"

        27 said a great deal   15 said not very much
        45 said quite a bit   2 said not at all
        11 said its alright

WHAT SIZE AD SHOULD YOU SELECT?

As I flip through my Yellow Page Directory in search of a product or service, I often pick one of the larger ads...WHY? The larger ad is easier to read and makes the company appear "friendly"...they are telling me something about themselves!

Before placing the order for your ad, it is a good idea to look in the most current Yellow Page Directory and observe the size of the competitor ads under the section(s) you plan to be listed. Now decide just how much attention you want drawn to your ad as compared to your competitors. Usually a quarter page ad will be more than adequate. Even if you have plenty of business, keep that name in the public eye! Try a smaller ad the following year.

Use the white pages to advertise your location, hours of
operation, mailing address, or reference your Yellow Page ad...

Tell the buyer exactly where you are located

Reminder to see your ad in the Yellow Pages for complete Information

Tell them your hours of operation

Mailing convenience: show your P.O. Box, zip code or suite number

---

Column 1

2110 Benton Rd Bossier City ———— 746-4712
ALLEN'S MENS WEAR
2110 Benton Rd Bossier City ———— 746-4712

B

B-CON CONSTRUCTION CO INC
106 E Kings Hwy
B DALTON BOOKSELLER
St Vincent Mall
Benton Road Paints & Supply
601 Benton Rd Bossier City ———— 74
BENTON SALES & SERVICE CO
In Westgate Shopping Center
Corner of Southfield & Brown
Picard Rd ———————————— -856-4200
Buckner Robert E
1620 Nikki Lynn Dr Bossier City ———— 742-8041
Buckner Robert L 3552 Youree Dr ———— 861-4858
BUCKNER SQUARE NORTH
Fairfield Bldg ———————————— 226-0905
BUCKNER SQUARE OFFICE PARK Fairfield Bldg ———— 226-0905

C

C & B Lounge 1804 Milam ———————— 221-9423
C-BARC Respite House 141 Brookbriar Dr — 425-1884
CBS TOYS—
See Gym Dandy
415 Hamilton Rd Bossier City
C-BARC—
Hour Emergency # ——————————— 226-1045
Adult Services—
Ofc 351 Jordan ——————————— 221-8392
Ofc 4604 Macks Dr Bossier City ———— 747-1880
Children's Services—
Goldman School 351 Jordan ———— 221-8386
Goldman School
1465 Patricia Dr Bossier City ———— 742-9800
C & C APPLIANCE REPAIR SERVICE 1622 Highland Av ———— 635-4664
C & C AUTO & TRUCK PAINT & BODY SHOP 436 North Market ———— 425-8820

D

Dale Daryl C 1921 SW 49th Pl —————— 376-1446
Dale Jim 2925 SW 28th Pl —————— 378-3170
Dale Patty 715 SW 10th St —————— 375-3849
Dale Robert O CPA 222 NE 1st St ———— 378-2461
Res 1629 NW 40th Terr ——————— 372-0651
Dalessio Gerald 3591 NW 37th St ——— 373-9761
D'Alessio Robert A 1231 SW 3rd Av ——— 375-1835
Daley Louis A 720 SW 34th St ————— 372-6634
DallAgnol Amelio 2905 SW 13th St ———— 377-0205
Dallas Robert 8 Fraternity Row ———— 377-2806
D'alli S J 3530 SW 24th Av ————— 377-09
Dallis Yvonne 3101 NE 15th St ————— 37
Dallman John J Dr 1208 NW 4th St———— 3
Dalsheimer Barbara Miss 1811 SW 35 Ter—
Dalton Dave 3414 NW 34th St ————— 3
Dalton G Ronald 4623 NW 16 Pl ———— 37
Dalton Geo T 1900 NW 36th Dr ———— 375
Dalton Mack 2121 NW 55th Terr ———— 376-08
DIRECTIONAL ENTERPRISES INC
Monday thru Friday 8:00 A.M. to 5:00 P.M.
P.O. Box 194 Zip Code 28428
205 Ronald Rd Broussard ———— 837-9803
Doctor Larry ———————————— 422-3304
DR PEPPER BOTTLING CO OF SHREVEPORT ———————— 222-8661
Dr Psyche Mobile Disco 5425 Lovers — 425-4359
Doctors Bldg ———————————— 422-2234
Doctor's Bldg Lab ———————— 221-68
Doctor's Business Bureau ————
Store Exchange Cr —————— 865-38
Store Exchange Cr ———————— 99
DOCTORS' HOSPITAL ——————
SOUTHGLASS INSURANCE AGCY

Column 2

Atlas Div ———————————— 229-7191
Sales Of ———————————— 229-52P
Drew R C 2774 Saratoga Blvd Bossier City — 742-1155
Drew Richard B 2 Rogers Apts ———— 797-0358
Drewek Thomas 2055 E Morgan Dr ———— 688-1542
Drewek Tony 2353 Jefferson Dr ———— 687-7947
Duggan Don D 3254 Centenary Blvd —— 865-9582
Children's Telephone
3254 Centenary Blvd —————— 865-1255
Duggan Don H otc 1509 Grummet Dr —— 222-8371
Res Old Dixie Rd ———————— 226-8634
Duggan J L 1631 Cross Lake Blvd ———— 635-7985
DUGGAN L D INC—
4039 Ratcliff Rd ———————— 635-3690
Mobile Telephone —————— 227-3353
Duggan Larry 6322 Garden Oaks Dr —— 686-42
DUGGAN MACHINE CO INC
1509 Grummet Dr —————— 222

DUGGINS JOHN HAIRSTYLING

See Our Ad At Beauty Salons

100 St Bernadette ———————— 237-4255

DURHAM & DURHAM Attys ———— 869-1266

Durnin Marc 320-B University Village South — 372-2162
Durr Charlie J Farnsworth Rd ———— 576-0009
Durr John 2930 SW 34th Pl ———— 373-6537
Durr Marie 1900 SE 4th St ———— 372-0279
Durrance Chas L Jr 2248 NW 5th Pl — 376-7448
Durrance Chas L Jr 2248 NW 5th Pl — 376-7448
Durrance Don 3301 SW 13th St ——— 375-2787
Durrance Don 3301 SW 13th St ——— 375-2787
Durrance Jack 1137 NW 107th Ter —— 376-7962
Durrance P Windsor ———————— 378-2047
Durrance R Neil Jr 4 SW 80th Blvd —— 372-5624
Durrance Ronnie P 1240 NW 55th St — 372-6694
Durrance Synda 3006 SW 23rd St ——— 376-3881
Durrant Esaw 1719 SE 8th Av ——— 377-4443
Duryea ———————————— 222-4671

Eaton E Sinclair 414 NE 4th Av ——— 376-3457
Eaton E Sinclair Mrs 414 NE 4th Av —— 378-2254
Eaton Elizabeth S 1906 NW 22nd St — 372-9884
Eaton James E 2634 SW 14th Dr ——— 372-2195
Eaton James V 1500 NW 16th Av ——— 378-4361
Eaton Jan 1700 SW 16th Ct ———— 373-6821
Eaton May 2003 NE 7th St ———— 373-0839
Eaves Cindy 1810 NW 23rd Blvd ——— 375-2296
Eaves T 2930 SW 23rd Ter ———— 376-4107
Ebaugh & Goethe Inc engr 205 NW 10th Av — 376-5145
Ebaugh Karolyn 714 SW 16th Av —— 377-4719
Ebaugh Kathryn 714 SW 16th Av —— 377-4719
Ebaugh Newton C 2737 SW 4th Av —— 372-5090
Ebcioglu H Aybegum 3505 NW 7th Pl— 372-0234
Ebelke R 207 NW 17th St ———— 377-4546

Column 3

Estein V E Jr 2413 Hoyer Bossier City —— 747-9427
Estelle's Closet 3216 W 70th ———— 687-8793
Estep B L 1156 Gilbert Dr Bossier City — 746-2637
Robert L 209 Paula Circle Bossier City — 747-2657
Graham 2444 Audrey Lane ——— 227-8794
da 3045 Terry ——————— 221-6679
ia Mrs 419 E 83rd ——————— 868-3947
610-1/2 Rear Caddo ——————— 424-4877
9 Sasafras ———————————— 861-7179
ta 2728 Chapman ——————— 424-2348
immy Lee 419 E 83rd —————— 868-3947
azy Mignonne 1063 Sheridan —— 221-4118
Esters Brenda Faye 3030 Stafford —— 221-4130
Esters Frances 3030 Stafford ——— 221-4130
Estes Buddy 288 Hidden Hollow Dr — 868-8688
Estes David T 240 Bossier Rd Barksdale — 221-7178
EVER FRESH SANDWICH CO
1852 Texas Av ———————— 425-2191
If No Answer Dial ——————— 686-9350
Everage Byron The Aspen Apt ——— 687-5928
Everage Glen R 9013 Rosedown Pl — 688-1123
Everage J W 4312 W Canal ——— 631-8410
Everage Kenneth 941 F Amey Way —— 688-0960
Everage Reed L 5318 Summont Blvd — 687-3138
Everett Bruce 6932 Broadway Av —— 635-9330
Everett C E ——————————
E

FAS REALTY CO INC ———— 369-1273
F R L Ford Group ———————— 221-9162
FEDERAL BUREAU OF INVESTIGATION 500 Fannin — 221-8439
If No Answer Dial New Orleans La — 504 522-4671
FEDERAL ENVELOPE-CHAMPION INTERNATIONAL CORP
See Champion International Corp
FEDERAL EXPRESS—
Pick-Up 5103 Hollywood Rd ——— 227-1903
Information
Toll Free-Dial '1' & Then —— 800 238-5355
FROST-WHITED CO INC—
General Office 2005 Texas Av —— 221-8200
Shreveport Warehouse Company
Division Of Frost-Whited
pany Inc 2005 Tex Av ——— 425-5367
Number 3 149 Levy ——— 425-7472
s Inc 6322 Union Av ——— 865-0263
Drive-In 6905 Southern Av — 861-4412
DIVISION
AUF CORPORATION—
————————————— 425-7747
Department 2401 Grummet Dr — 425-2453

G

GAB Business Services Inc
1181 Haven Av

GRANDVIEW NURSERY

Close Wednesday at Noon
Just South of Expressway
Suite 2000
P.O. Box 419 Zip Code 42882

Column 4

Gulf States Truck Line 4277 N Market — 222-8257
If No Answer Dial ——————— 226-9532
If No Answer Dial ——————— 221-3103
Gulf Supply Co Beaumont Texas
No Charge To Calling Party
Ask Operator For——————— WX-1001
Gullatt Edwin F 5709 Lovers La ——— 865-3971
Gullatt Foster B 327 Linden ——— 868-8182
Gullatt Gus 2548 Audrey La ——— 221-8787
Gullatt Thomas James 1728 Edwin — 635-5864
Gulledge Dolores 426 Kenshire Cts — 797-7376
Gulledge K E Old Jefferson Rd ——— 635-2270
Gulledge M J 7610 Tampa Way ——— 797-3336
Gulledge M J Jr 8630 Jackson Square Place — 797-3443
Gulledge Robert E 743 Mc Cormick — 865-2586
Gullett Garry D Villa Del Lago Apts — 635-4642
Gullette K Dennis 612 W 82 ——— 687-7800
Gullette Lois 940 Austin Pl ——— 861-7438
Gullette Thomas A 547 W 77th ——— 687-0808

GULLEY--- See Also Gully

Gulley Billy & Judy C
Barksdale Barracks Barksdale ——— 222-4860
GULLEY C TRUCK SERVICE INC
2004 Claiborne ——————— 222-8258
Gulley Claude Jr 180 Arthur ——— 861-6914
Gulley Mike Southfield Apts ——— 861-7524
Gulley Spinnaker Apts ——— 687-3473
Gulley Carlton Av ——————— 221-5663
Gulley 3002 Drexel ——————— 635-1575
Gulley Kings Highway ——————— 797-2864
ph
Highway ——————————— 797-7823
E Flournoy-Lucas Rd ——— 797-1033
10031 E Kings highway ——— 797-9354
Gulley John A Flournoy Lucas Rd —— 797-0361
Gulley John P Colonial Plaza Apts —— 797-2263
Gulley John S 1516 Dora Ann Pl —— 797-8678
Gulley Johnny P 710 E Flournoy Lucas Rd — 797-8639
Gulley Leo 710 E Flournoy-Lucas Rd — 797-3432
Gulley Michael 710 E Flournoy-Lucas Rd — 797-1033
Gullo Richard 165 Ardmore ——— 868-8968
Gullo Richard 710 E Flournoy-Lucas Rd — 797-1033

H

H WOLCOTT REMODELING & REPAIRS 832 Dalzell ——— 226-9663
HAAB SECURITY LIFE INSURANCE CO 601 Financial Plaza — 686-1225

HALL-LOCK SERVICE COMPANY
714 West 70th ——————— 868-0149
Hall Louis C 5116 Armstrong Pl ——— 635-9932
Hall Louis C & Sons Drive Inn Grill
5718 Broadway Av ——————— 635-5252
Hall Louis E 110 Carriage Square Dr Bossier City — 742-3184
Hall Louis E Jr 307 Bobbie Bossier City — 746-5361
Hall Louis F 4708 North Lake Dr ——— 227-8943
Hall Lovenia 1119 Coleman Bossier City — 226-1659
Hall Luther 3846 Claiborne Av ——— 635-4268
Hall Lynn A 3103 Boone ——————— 636-1233
Hall M C 311 Barksdale Blvd E ——— 742-8051
Hall M J 6611 Gilbert Dr ——————— 865-4813
Hall M Leon 1436 Andrew Av ——— 425-7143
Hall M S 2100 Wakefield Bossier City — 746-4965
Hall M W Kings Manor Apts ——— 687-3847
Hall Maggie Lee 815 Ascalon ——— 861-8382
Hyatt ———————————— 868-5809

Hyatt Cooper ———————— 635-7572
Hyatt ———————————— 424-3116
Hyatt Donald A 4036 Richmond Av — 861-7211

WHAT DO YOU THINK?

The ads on the next few pages are ones which we had made up over the past few years. Under each of them will be our comments of what we thought of each ad. Hopefully, these comments will give you some thought on your Yellow Page Ad for 1985.

The ad above was used for our company a few years ago when we were centering our attention toward accounting systems. This ad is informative with the art-work. The company name appears oriental or faddish. Therefore, we have gone with a more traditional type to date. This ad makes our company appear to be more of an accounting computer company, because it does not show other packages we offer.

This is the ad we are using in the yellow pages to date. If you notice from the other ads we have presented in this article, our ad seems to get smaller each year. Currently, we are not seeking to take on more new accounts. We have been concentrating most of our efforts on growth of our current customers. However, next year will be a different situation!!

ORIGINAL PAGES 7, 8 MISSING.

***** "HEARD IT THROUGH THE GRAPEVINE" *****

Benchmark '85 report for the BTI verses the HP 3000 - surprises everybody and wins by a factor of 3 !.....Atlanta Field Service Accident - truck backes into Computer Transport Truck in Atlanta.....John Gray becomes new district sales manager for Atlanta.....Bill O'Donnell's horticultural love for the Ivey has gotten so bad that he will be relocating to Tampa on March 1, 1985. Apparently BTI has the Ivey fever and is opening an office in Tampa.....Plans are to hire an additional 11 salesmen and 4 system analysts in the up-coming year for BTI's marketing staff.....Congratulations to Connie, John Gray, and Bill for embarking upon a running campaign and our thanks to the field service team in Atlanta who provided the encouragement and incentive.....6000 scheduled for some more significant enhancements, but does have problems on systems with Okidata Disk Drives.....Bruce Adams has been replaced and is no longer with BTI. We welcome Judy Thurman to the Western Region! Go get 'em Judy!.....BTI has worked on an agreement with MCBA to place their COBAL version of AR, AP, GL and Payroll on the 8000. So far everything but the payroll is now up and working on the 8000.....ATTENTION !! All Field Service Personnel, beware of trucker mouths at the BTI site in Jamaica, NY.

<>

***** HARDWARE CLASSIFIEDS *****

1. BTI 4000 - Used on Reynolds & Reynolds VIM III System. Under BTI Maintenance. Will sell complete or individual components. Four Falcon Drives, 2 DEI. Make offer: Bob Rosenberg 513/541-3300. (EXP 2/85)

2. BTI 4000: Used on Reynolds & Reynolds VIM III System, 24 ports, one-DEI Tape Unit, three 10-mb Falcon Drives. Will sell complete or individual parts. MAKE OFFER! Call Sam Savidge (206) 622-1981. (EXP 03/85)

3. 2 - U.S. Robotics Phone Link Accoustical Couplers, 300 baud, almost like new, guarantee, power supply...........$75.00 each
1 U.S. Robotics Micro-Link 300 Modem.............$150.00
Contact: Trevor Evans/TUI Computer Services (615) 242-4477 (EXP 03/85)

4. COTTON DUST COVERS - for CRT's (15.00) and Printers (14.00) plus shipping and taxes. Call Compac (916) 965-1568 or send specs. to Compac, 9912 Fair Oaks Blvd., Fair Oaks, CA 95628. (EXP 03/85)

5. BTI 4000: 2 each 49 MB Drives, DEI Tape drive, 32 ports, Call Earnie Philips or Ellen Scott at 215/849-1200. Best reasonable offer. MARS/ASAP/PAYROLL/JOB COSTING for BTI 4000 & 5000. MARS is a full DBMS, ASAP is an excellent accounting system, includes GL, A/P, A/R, Payroll, Job Costing. Call Earnie Philips/Ellen Scott 215/849-1200. (EXP 03/85)

<>

***** SOFTWARE ADVERTISING *****

FSORT - Is a complete rewrite of BTI's $$$F-SORT, which can reduce sort times by 50% (especially for string keys). It automatically chooses between 2 sorting techniques and can sort much larger files. Priced @ $400.00 postpaid on magnetic tape cartridge. Harold Raphael, Concentric Computer Corp., 830 Bay Avenue, Capitola, CA 95010. (408) 476-9331 (EXP 3/85)

MINDS: Affordable DBMS and applications generator. User-defined searches, sorts and reports, prompt or transaction-driven, will access foreign files, and user and programmer documentation is built in. Over 10 years' heavy commercial use. We will deliver turnkey applications. Your first project will pay for it. Minnesota Datasystems, Inc. Bill Schmitt @ (612) 472-3033. (EXP 6/85)

MARS/ASAP/PAYROLL/JOB COSTING: For BTI 4000 & 5000. MARS is a full DMBS, ASAP is an excellent accounting system and includes GL, A/P, A/R, Job Costing & Payroll. Call Earnie Philips or Ellen Scott at 215/849-1200. Best reasonable offer. (EXP 03/85)

<>

***** NEEDED *****

New BTI User - Interested in obtaining General Ledger, Construction/Job Costing, and Payroll programs. Should other user have these programs available and wish to negotiate a sales price please contact: Betty Jennette c/o Southern Shores Realty, P.O. Box 150, Kitty Hawk, NC 27949. Phone: (in NC) 1-800-682-2002, (all other areas) 1-800-334-1000. (EXP 2/85)

<>

NEED SOME ADVERTISING ??

Rates =$36.00 for three issues of UP-TIME (subscriber)
$36.00 per issue for non-subscribers (outside vendors)

<>   10 ((P))

***** SECOND ANNUAL BTI EASTERN REGIONAL USERS MEETING *****
FROM: ATLANTA BTI OFFICE

Preparations are under way for our "Second Annual BTI Eastern Regional Users Meeting" tentatively scheduled for May 13-14, 1985 at the Don CeSar in St. Petersburg Beach, Florida. We have chosen the Don CeSar again because of the excellent service we received and availability of low cost hotel and air fares and the Florida SUN-SHINE!

We need your assistance. What would you like to see? What do you wish to discuss? Would you like to make a presentation? A continued successful meeting is dependent on your participation and interest.

We will be anxiously awaiting your response.

Regards,   BTI Computer Systems
BTI COMPUTER SYSTEMS   2030 Powers Ferry Road, Suite 126
Bill O'Donnell, Jr.   Atlanta, GA 30339
Regional Sales Manager   (404) 951-0014

***** HARDWARE CLASSIFIEDS *****

1. BTI 4000 - Used on Reynolds & Reynolds VIM III System. Under BTI Maintenance. Will sell complete or individual components. Four Falcon Drives, 2 DEI. Make offer: Bob Rosenberg 513/541-3300. (EXP 2/85)

2. BTI 4000: Used on Reynolds & Reynolds VIM III System, 24 ports, one-DEI Tape Unit, three 10-mb Falcon Drives. Will sell complete or individual parts. MAKE OFFER! Call Sam Savidge (206) 622-1981. (EXP 03/85)

3. 2 - U.S. Robotics Phone Link Accoustical Couplers, 300 baud, almost like new, guarantee, power supply..........$75.00 each
1 U.S. Robotics Micro-Link 300 Modem.............$150.00
Contact: Trevor Evans/TUI Computer Services (615) 242-4477 (EXP 03/85)

4. COTTON DUST COVERS - for CRT's (15.00) and Printers (14.00) plus shipping and taxes. Call Compac (916) 965-1568 or send specs. to Compac, 9912 Fair Oaks Blvd., Fair Oaks, CA 95628. (EXP 03/85)

5. BTI 4000: 2 each 49 MB Drives, DEI Tape drive, 32 ports, Call Earnie Philips or Ellen Scott at 215/849-1200. Best reasonable offer. MARS/ASAP/PAYROLL/JOB COSTING for BTI 4000 & 5000. MARS is a full DBMS, ASAP is an excellent accounting system, includes GL, A/P, A/R, Payroll, Job Costing. Call Earnie Philips/Ellen Scott 215/849-1200. (EXP 03/85)

<>

***** SOFTWARE ADVERTISING *****

FSORT - Is a complete rewrite of BTI's $$$F-SORT, which can reduce sort times by 50% (especially for string keys). It automatically chooses between 2 sorting techniques and can sort much larger files. Priced @ $400.00 postpaid on magnetic tape cartridge. Harold Raphael, Concentric Computer Corp., 830 Bay Avenue, Capitola, CA 95010. (408) 476-9331 (EXP 3/85)

MINDS: Affordable DBMS and applications generator. User-defined searches, sorts and reports, prompt or transaction-driven, will access foreign files, and user and programmer documentation is built in. Over 10 years' heavy commercial use. We will deliver turnkey applications. Your first project will pay for it. Minnesota Datasystems, Inc. Bill Schmitt @ (612) 472-3033. (EXP 6/85)

(4 11

Q. "Is is possible to transmit an 8-bit word? We need to send data to devices which require the use of ASCII codes 128 and above. Can we get the X-ON, X-OFF feature? How will it effect our printers?" (Trevor Evans)

A. The 4000 and 5000 types, including the MARK II, send seven data bits, a parity bit, and a stop bit for each character. 'Way back when these computers were first being designed, teletypes were commonly used as terminals. These work at only 110 baud, and require two stop bits per character, for a total of ten per word. Regardless of baud rates, these data words are assembled by the CMUX (or COMM) hardware, and can't be changed by the user. So the short answer for 4-and-5000 users is no. You can't send ASCII 128 and up.

The new model 6000 uses an 8-bit word with no parity bit added, so if your terminal is set to ignore parity, you can send all the ASCII codes. Model 8000 users can configure their ports to send data in just about any format imaginable, up to ASCII 255. Some of the latest intelligent terminals use these non-printing characters as commands to change fonts, or spacing etc.

Some of the newer terminals can also accept data at a rate far faster than they can physically print it. A TI820, for example, lays the characters onto the page at about 1200 baud, but will listen to the port output at 9600. The data is stored in a local buffer, or temporary holding tank, in the printer. When this "tank" is about to overflow, the printer sends an X-OFF, or Control-S character back to the computer, which freezes furthur transmission. The printer continues printing steadily, until its buffer is empty, when it sends an X-ON, or Control-Q character. This causes the computer to resume sending. Greater throughput is one benefit, because linefeed, formfeed, and carriage return delays for that port can be set to zero.

The Control-X option is also handy for freezing a video terminal. Just type a Control-S, and the text will stop scrolling past, until you type a Control-Q. Neither character will echo to the screen.

Most 5000 systems running Revision 15 software have this option already. The option can be downloaded by phone from Sunnyvale onto Rev. 15 systems that do not have it, but there is a charge. It is NOT available for model 4000 systems unless you have the COMM boards replaced with the newer CMUX cards.

Revisions 14 and lower are no longer actively supported, which means that special software enhancements for those versions will not be developed or installed. If you are running ancient system software, we suggest you contact our Marketing department and arrange an upgrade to Revision 16. This latest operating system has Control-X and other software enhancements built in, including new commands such as DLI (the high-speed program lister), and TRC (compact file-to-tape storage). It runs faster, too.

On the model 8000, X-ON processing can be turned on or off by the system administrator, as desired.

Q. "When a user buys used equipment, should they install it first, and then call BTI, or call BTI first?" (Teresa Kreh)

A. We answered this one in UPTIME #18, but it's important enough to repeat. Before your service contract can be extended to cover new or additional hardware, a BTI phones engineer will have to dial into your system to test it. The engineer will also update your site records afterwards.

It's possible that the new equipment cannot be made to work without changes to your computer's operating system, or perhaps a new op system altogether.

It's never a good idea to pull cables or otherwise change the system without a phones engineer to give you advice. Any mistakes you make while doing so are not covered by your contract.

Call your local sales representative first. They will tell you what you'll need to make the new part work, and arrange whatever service you'll require.

Q. "Why is the new 6000 limited to: (a) 24 ports maximum, with a line printer; (b) 2.4 MB volume restriction; (c) 10KB user workspace?" (Dave Green)

A. The workspace will be expanded, most likely in February of this year. The next revision of the 6000 operating system will permit 32 ports with a line printer. They are working on it now. The volume size restriction will be dealt with after that. I'm sorry we can't be more definite as to completion dates, but it's impossible to predict what problems will be encountered as this new product is developed. Our first priorities have to be affordability, reliability, and serviceability. Without those qualities, no amount of nifty features will make the product a success for us or the customer. The other items you mentioned in your letter--string arrays, dynamically allocated memory, more ports--are all available on the model 8000.

(13)

-- Here's a software tip that may speed up your system's response time...

On the model 5000, the more ports you have set to higher speeds, the greater the system overhead, and the LESS overall throughput. Although data SEEMS to be displayed more quickly, other users are actually swapped into core less frequently as a result.

So, it doesn't make sense to send data to printers at a rate faster than they can actually display it, even if they can accept it. If the printer frequently sits idle, you can set the port rate even lower without slowing up the printer's total daily output.

Think twice about setting your video terminal to a speed faster than your eyes can read.

Ideally, each terminal on the system should be running at the slowest acceptable rate, unless you have power to spare. This is rarely the case, unless you own an 8000. All the ports on an 8000 can be set to 19.2 kilobaud without decreasing overall efficiency.

We hope your Christmas was merry, and wish you all the best in 1985.

--Ray Smith

Certain tax provisions can help you recover as much as 71 percent of your development costs —if you set things up right.

In purchasing or developing computer software for your company, make sure you obtain the substantial tax benefits available. Setting things up right can result in recovering as much as 71 percent of your software development costs by way of reduced taxes. The key is to structure and document your software development to realize the maximum combination of deductions and tax credits. Otherwise, you can easily reduce those benefits to zero and bear the entire cost yourself!

In general, computer software is treated as an intangible asset used in a taxpayer's trade or business, whose cost can be amortized (deducted) over five years, or a shorter period if it has a lesser expected useful life. (Revenue Procedure 69-21, 1969-2 CB 303.) This treatment is generally permissible whether the taxpayer itself develops the software or purchases it from a third party. Or, if it is included as an unallocated part of acquired hardware, its cost can instead be treated as part of the hardware cost and depreciated over the same period as the hardware. Under the new Accelerated Cost Recovery System ("ACRS") enacted in 1981, computer hardware will generally qualify for depreciation over five years according to Internal Revenue Code, Section 168.

In a ruling published in 1969, the IRS concluded, "the costs of developing software ... in many respects so closely resemble the kind of research and experimental expenditures that fall within the purview of Section 174 of the Internal Revenue Code ... as to warrant accounting treatment similar to that accorded such costs under that section."

Deduct the costs

For qualifying "R&E" (Research & Experimental) expenditures, the taxpayer can elect to (a) deduct the costs of developing software in full in the year it is paid or incurred, or (b) amortize each project's costs over no less than 60 months or the product's actual useful life. Whichever route is elected must be continued for future years unless the taxpayer applies for and receives IRS consent to change the method.

Enacted as part of the Economic Recovery Tax Act of 1981, Section 44F of the Code entitles the taxpayer to take an additional tax *credit* of 25 percent of the amount by which the taxpayer's qualified R&E expenditures exceed the previous three years' average, but no more than 50 percent of any year's expenditures may be included in any year.

Overall, the deduction—at a 46 percent corporate tax rate—plus the credit (25 percent times the increased expenditure) means the taxpayer can recover as much as 71 percent of the increased R&E costs by tax reductions. (The credit is nonrefundable, so companies must have taxable profits to realize its benefits. The credit, however, may be carried back three years and forward 15 years to be recovered against taxes for those years.)

"Qualified Expenditures" encompass: all of the costs for wages, supplies and equipment for in-house qualified expenditures, plus 65 percent of the costs of qualified research contracted from third parties or basic research contracted through universities and certain other similar organizations.

Expenditure must be paid

For the deduction under Section 174, the expenditure must be paid or incurred *"in connection* with his trade or business." The US Supreme Court made it clear that R&E expenditures qualify for the deduction treatment even if they were incurred in developing products before the taxpayer began actively carrying on that or any line of business. In *Snow v. Commissioner,* (1974), the Court granted the deduction to a new R&D (Research & Development) partnership formed to develop a new incinerator.

But, to qualify for the additional credit, the expenditure must be paid or incurred *"in carrying on"* an existing trade or business—a much greater requirement. For reasons not clear, Congress wrote the provision to deny to the taxpayers—such as R&D partnerships—who are not already conducting a business for which the research is being done.

For an existing corporation doing research in an area at all close to its existing business lines, this will be easy to meet. New corporations and businesses will have to keep good records to establish and document their activities showing they are already in business.

Software development expenditures will qualify, regardless whether paid for in-house or third-party software development, according to both Treasury Regulations and Revenue Ruling. The cost, however, of merely purchasing existing or custom modified software from a vendor is not a "research or experimental" cost for the taxpayer-purchaser. Nor are routine, periodic alterations to existing software.

Key issue

A key issue focuses on who bears the risk that software can be developed to accomplish the results sought. This concept has been the subject of great dispute.

Under the Treasury Dept.'s first set of proposed regulations, the costs of developing "new or significantly improved computer software" would qualify for the credit if there is a significant risk that [a workable program] cannot be written; but not if the "operational feasibility [of the program] is not seriously in doubt."

The Treasury's initial interpretation was viewed as unnecessarily restrictive. It will shortly be replaced by a more generous interpretation focusing on functional changes in the product which increase productivity. To strengthen your claim to the credit, the software development contract should explicitly describe the functional changes to be made, the desired improvements in productivity, and the substantial improvements sought to be realized.

The possible initial Treasury version suggests you should add the uncertainty of developing the program and the explicit lack of the writer's guarantee that the program can be developed. That lack of a guarantee or warranty may certainly be unacceptable to a purchaser.

Warranty obligation

In order to obtain the R&E deduction and credit, the warranty obligation of the program writer may have to be loosened to a promise of "Best Efforts." This may provide some avenue for price negotiation between purchaser and program writer. It will be important to have your tax advisor review the agreement in order to fix the best possible balance between performance obligations on the writer and obtaining maximum tax benefits.

Although the provision is due to expire at the end of 1985, the Treasury believes the credit is a positive incentive to the economic well-being of the country. Most experts expect it will be made a permanent provision of the tax code by then. ⓝ

UP-TIME (T.M.)

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***** CORRECTION FROM LAST MONTH *****

UP-TIME, Volume 26, was supposed to have been dated January 15, 1985...not January 15, 1984. Please make necessary corrections. We are aware that many of you file issues of UP-TIME in order according to date.

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***** LAST MONTH'S SURVEY *****

Thank you! Thank you! We appreciate those of you who did take the time to fill out the survey and return it to our office. The survey was a great success. Most everyone DID participate. If you have not returned your survey sheet...please do so. There is not a dead-line. This information has been surprising and most interesting to us here at UP-TIME, and WILL determine future articles in this newsletter. Each month we will be contacting one of you to feature your company in UP-TIME...that is if you indicated such interest on the survey sheet accordingly.

Again, many thanks!

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***** CONTEST ! *****
----- (Humor...) -----

Bob Brown of BTI's technical publications department is looking for fictitious programmer names. These will be used as examples in a Cobol manual. Here's what he has been sent so far...

    Yup E. Nerd, Mark Runtime, B. Peronbelt, I.D.
    Badge, D.E. Icart, Mark Ettingtype, V.T. Syndrome,
    P.C. Bored, Polly Esterpants, Ty Clippon, Maggie
    Tape, Reggie Ster, C. Muxboard, Meg Abbite, Mike
    Roprocessor, Murphy Slaw, Dave Icedriver, Bill
    Unpaid, Pat N. Pending, Val Function (Len's wife),
    Minnie Mainframe, Bugs Backplane, Robot F. Kennedy,
    A. I. Labs, Maude Potrero, Reed Only, Amos Fetchip,
    Kim Wipes, Tex Pads, E.I. Astandard, Lee Visegene,
    Pico Ferad, Les Typos, Ernest D. Bugger, Link
    Loader, Mack Romode, Phil Memory, Mary Avenue,
    Sunny Vale, Cal I. Fornya, Tab Keys, Kate Thousand,
    Fran Domemory, Louis Portcable, A.C. Failure, Rich
    Salesmen, Vera Complicated, Ty Mout, Flo Tingpoint.

If you can think of some computer-related names, send them care of this column. First prize is a trip to Milpitas, California. Second prize is two trips. Third prize, you have to stay there!

```
      *****   TO TAX OR NOT TO TAX  *****
      -----  Computer Software  -----
```

22 States tax off-the shelf software and exempt tailored software
18 States tax both off-the-shelf and custom software programs
 5 States tax neither
 5 States do not impose sales tax on any type of goods (Alaska,
   Delaware, Montana, New Hampshire, and Oregon)

Software sales taxation reflects divergent views on whether
software is tangible or intangible. Most states impose sales tax
on transfers of tangible items. Software is not easily
classified since the value of the information in the software
usually exceeds the value of the tapes and disks used to transfer
that information.

       Taxing Software = Classifying programs as tangible
       Non-taxing   = Classifying programs as intangible
                         (i.e. services)

Many states divide software into two types: ③

       Off-the-shelf - Prewritten programs without modification
       Custom   - Off-the-shelf with modifications or
                       Individualized programs

If you work in a state that taxes software and wonder whether
it's possible to save money by purchasing software in a state
that doesn't tax it, you can stop wondering. Every state that
has a sales tax also has a use tax mandating that all software
purchased in a state without a sales tax must be taxed at the
buyers' home-state tax rate. Corporations that buy large amounts
of software in a tax-exempt state for use in a state that has a
sales tax are at the risk of being apprehanded. The fine for tax
evasion is too great.

<>

BTI sells systems in Canada and Great Britain. Representatives from BTI's two new German customers, Mattiessen and Schaffrath, visited the home office in Sunnyvale the first week in February. They brought some welcome on-line test results.

In their example, under the old interpretive COBOL, a large sort job took approximately one hour, twenty minutes to finish. For comparison, this same task required about 22 minutes on an IBM 4331 with two System Analysts attending the machine to manually allocate the load. Running unattended under the new compiled COBOL, the job finished in about ten minutes on their model 8000.

We should have more for you as the conference continues.

***** MORE NEWS FROM BTI... ***** ④

One of BTI's original sales staff is returning to the Sunnyvale office after a retirement to Chico, California. Frank Holt will resume duties as Western Regional Sales Manager. He's locally famous for the original sale of the model 4000 to Reynolds & Reynolds, who now have about 35-hundred BTI machines.

Another Western Regional Customer Seminar has been slated for the first week in June. The location of the 2-day event has not been fixed, but possibilities include Denver, Phoenix, or San Diego. Judy Thorman, the District Sales Manager, would like to know which city customers prefer. To cast your vote, call her at the Sunnyvale office.
One of the topics to be discussed is the possible merger of the central and western sales districts.

Efforts have been underway since late last year to convert the MCBA Accounts Receivable software package for use on the model 8000. MCBA's COBOL programmers are working with BTI's Kathy Craig and others in Sunnyvale. They fully expect to have the wrinkles ironed out this year.

According to the January issure of Software News, this relatively small software company is competing successfully against gigantic IBM. Both have an equal share of the market, at 20% each.

MCBA is running a close second to "big blue" with their Accounts Payable and General Ledger packages. Long-range plans call for those to be converted as well, if all goes as expected with the Receivables project.

***** HARDWARE CLASSIFIEDS *****

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6. BTI 5000 with 16 ports and DEI Tape Unit. System available with Ampex 980 80 MB drives. $10,000 per computer plus $2,500.00 per drive. Also, 8 port comm panels @ $950.00 and LA120 Decwriters @ $1,150.00 ea. Call Sheldon Shapiro at (415) 858-2800. (EXP 04/85)

7. BTI 5000 - 60 Mb Okai Drive, 2 DEI's, 16 ports. Comes with license for Easycalc and EasyWriter. $16,750.00. Call Mike Raborn, O-WP Systems, (305) 628-4717. (EXP 4/85)

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***** SOFTWARE ADVERTISING *****

FSORT - Is a complete rewrite of BTI's $$$F-SORT, which can reduce sort times by 50% (especially for string- keys). It automatically chooses between 2 sorting techniques and can sort much larger files. Priced @ $400.00 postpaid on magnetic tape cartridge. Harold Raphael, Concentric Computer Corp., 830 Bay Avenue, Capitola, CA 95010. (408) 476-9331 (EXP 3/85)

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EASYCALC - The electronic spreadsheet application for the BTI Computer Systems. Very fast in operation, it provides 40 Cols by 52 Rows. 10 levels of pre-set calculations. Many more features. $795.00 or $1,500.00 with EASYWRITER (see below). Call Mike Raborn, O-WP Systems, (305) 628-4717. (EXP 4/85)

EASYWRITER - Word Processor for the BTI Computer Systems. Handles ful-screen editing, scrolling, wordwrap, and many, many more features. Very fast in operation. $995.00 or $1,500.00 with EASYCALC (see above). Call Mike Raborn, O-WP Systems, (305) 628-4717. (EXP 4/85)

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***** NEEDED *****

New BTI User - Interested in obtaining General Ledger, Construction/Job Costing, and Payroll programs. Should other user have these programs available and wish to negotiate a sales price please contact: Betty Jennette c/o Southern Shores Realty, P.O. Box 150, Kitty Hawk, NC 27949. Phone: (in NC) 1-800-682-2002, (all other areas) 1-800-334-1000. (EXP 2/85)

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NEED SOME ADVERTISING ??

Rates =$36.00 for three issues of UP-TIME (subscriber)
$36.00 per issue for non-subscribers (outside vendors)

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"My computer is broken. Two numbers which are obviously the same won't compare as being equal." --Clare Holt, others.

Here's a modified version of the program Clare sent us to illustrate the problem...

```
0020  X=1+.1+.1+.1
0030  PRINT "1 PLUS  1/10 PLUS 1/10 PLUS 1/10 IS",X
0050  PRINT
0060  Y=1.3
0070  PRINT "And Y has been set to 1 and 1/3, OR",Y
0090  PRINT
0100  PRINT "The computer thinks that X and Y are ";
0110  IF X<>Y THEN PRINT "NOT EQUAL"
0120  IF X=Y THEN PRINT "EQUAL"
0130  END
```

It adds four numbers together, and compares the results with what any child might predict. When you run it, however...

    1 PLUS 1/10 PLUS 1/10 PLUS 1/10 IS   1.3

    And Y has been set to 1 and 1/3, OR   1.3

    The computer thinks that X and Y are NOT EQUAL

The machine only has a few bits to represent what might be an infinitely repeating decimal. At some point it must round a number off in order to represent it, either on paper for you, or in bits for its own internal purposes. Suppose, for example, you ordered the computer to print 1 divided by three with infinite precision. It would print a decimal point and an endless line of "3's" (.333333333333333333333...) and so on, until you ran out of paper. Three won't go into one evenly if you use the base 10 numbering system.
The computer uses base two for it's calculations, and some values simply can't be handled perfectly--you can't have half a bit left over. Then the binary numbers must be converted to base 10 for people to read. In a worst case, the inaccuracies of both are combined. And sometimes the shortfall is disguised in the rounding process. In the example above, we tested for equality, and the computer complied by checking each number bit for bit. Equality means PERFECT equality.

We'll illustrate by adding three lines to the program above.

```
0010  IMAGE "         -Internally represented as          ",D.7D
0040  PRINT USING 10;X
0080  PRINT USING 10;Y
```

The IMAGE statement at line 10 gives us manual control over the way the computer rounds off numbers during the display routine. Here, we've instructed it not to round off the numbers as much as usual.

```
1 PLUS   1/10 PLUS 1/10 PLUS 1/10 IS          1.3
              -Internally represented as       1.2999997

And Y has been set to 1 and 1/3, OR           1.3
              -Internally represented as       1.3000000
```

The computer thinks that X and Y are NOT EQUAL

Every computer has this problem to some degree, regardless of the language or number of bits used. Some fractions simply cannot be repesented perfectly. The classic example is Pi, the relationship between the circumference of any circle and its diameter. (3.141592654...etc.) Usually the answer you get is close enough. If your numbers are failing an equality check, you must round them off to the precision desired beforehand. As an example, we'll add these lines to the program listed above.

```
0005  REM P IS PRECISION       We're using one, meaning one digit
0006  P=1                      right of the decimal point.

0025  REM ROUND X              These new lines send the
0026  N=X                      numbers off to the rounding
0027  GOSUB 1000               routine at line 1000.  It multiplies
0028  X=N                      the number by the power of 10
                               specified, adds .5, chops off the
0064  REM ROUND Y              leftover fractions.  The resulting
0065  N=Y                      integer is then divided by by the same
0066  GOSUB 1000               power of 10, to give us a decimal
0067  Y=N                      again.

1000  REM ----- RETURNS NUMBER ROUNDED TO DECIMAL PRECISION (P) -----
1010  N=N*10^P
1030  N=INT(N+.5)
1050  N=N/10^P
1080  RETURN
9999  END
```

(8)

Here's a sample run...

```
1 PLUS   1/10 PLUS 1/10 PLUS 1/10 IS          1.3
              -Internally represented as       1.3000000

And Y has been set to 1 and 1/3, OR           1.3
              -Internally represented as       1.3000000
```

The computer thinks that X and Y are EQUAL

An alternative method would be to print the number to a string via PRINT USING, and then take the VAL of the string. Or you could take the absolute value of one subtracted from another, i.e.

2000 IF ABS(X-Y) > .5 THEN PRINT "NOT EQUAL ENOUGH!"

As usual, there's more than one right answer to the problem. Next time someone tells you that computers don't make mistakes, you can use this to illustrate that because of their limitations, computers sometimes MUST make "mistakes" in order to get the job done. --Just like people.

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(9)


```
*****  SOFTWARE TIP  *****
----- By:  BTI's CSS Division  -----
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In past issues you've heard us extol the many virtues of running up-to-date software on your model 4000 or 5000. These include better speed, fewer bugs, more features, and documentation which corresponds to current events instead of ancient history. Calls from customers revealed some confusion about who pays for what during an upgrade. Steve Lundgaard of our marketing department has cleared it up for us:

"The charge for upgrading to Rev. 16 is currently $375. That price includes cartridge tapes containing an operating system, a utility tape, AND the @001 library. Those wanting a current version of the @001 account only, can get them by sending us a blank tape cartridge (preferably a new one) and $150. If they don't have a cartridge to spare, we'll sell them a new one for an additional $50.

If for some reason a customer has paid for the latest operating system but never received the latest @001 account, we will provide one at no charge, if they send us a blank cartridge," Steve said.

The @001 libraries for Revision 16 and 17 are identical. If you are upgrading from 16 to the Mark II, no @001 changes are necessary. You can find out the revision level of your library by doing an IND-$$$. There should be some dummy one-line programs with names like "REV16&17" "!REV15", "!REV17" (unless you've deleted them, which sometimes happens). The highest number there is the rev level of your library. A simpler way is to run the ACCTTITLE program. The title of the @001 account should include the revision level.

Many customers are unaware that BTI provides a complete
word-processing program with every system we sell, at no extra
charge. The latest version on the model 5000 is called TEXT5, in
the $$$ public library. According to its author, Alan Prentice,
it supercedes all others. When RUN, it will print "V2.2-2".
Programs which print anything else i.e., "V6.7", are older and do
not contain all the features described by our current manuals.
The model 8000 edition is called TEXT8. Its version number is
2.2-4. It's what I use to write this column.

--Ray (10)

UP-TIME

(T.M.)

A PUBLICATION FOR USERS OF BTI COMPUTERS

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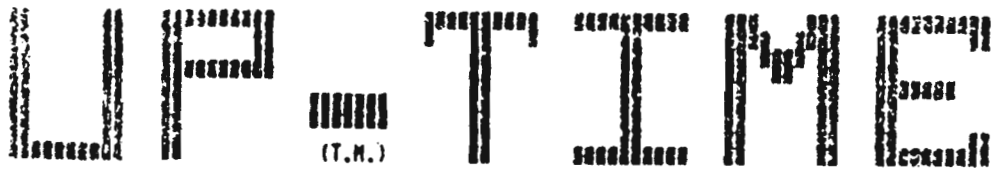
***** SURVEY RESULTS *****

Some of you have asked...We did a survey...Now we have answers!

1. Who are our readers?   4000 Users = 26%
                               4800 Users = 7%
                               5000 Users = 48%
                               8000 Users = 19%

2. Will you be hearing about other UP-TIME users and how
    they are using their BTIs?

    Yes! 50% of the survey sheets indicated that they would
    like to be contacted to have a feature article written
    about their company.

    NOTE: If you were one of these companies, please feel
    free to go ahead and mail UP-TIME any literature you
    might like to share with others in your article in order
    that we will have it on hand when we contact you.

3. MOST ENJOYED PARTS OF UP-TIME:
        Hardware Tips
        Programs
        Problem Solving
        Grapevine
        CSS
        BTI News
        Feature Articles
        Classifieds
        Facts
        Everything

    LEAST ENJOYED PARTS OF UP-TIME:
        Grapevine
        System Programs
        Reading the Mailing Label
        Humor
        Outside Vendor Ads

4. Things our readers feel we need to call more attention to...

    More on 8000

5. Should UP-TIME be typeset?

            NO =   65%
            YES =   20%
            UNDECIDED = 15%

INTERESTING RESULTS !!

THANK YOU !!

ADVERTISING

***** CORRECTION FROM LAST MONTH *****

Under the heading "More News from BTI" in last month's UP-TIME,
third paragraph...

  The problem with the original was that MCBA, as originally
  stated, is not doing the conversion. This paragraph should
  read:

  Efforts have been underway since late last year to convert
  the MCBA Accounts Receivable software package for use on the
  model 8000. Programmers from Data Directions, an independent
  software house, have been collaborating with BTI's Kathy
  Craig and others in Sunnyvale. They fully expect to have the
  wrinkles ironed out this year.

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***** UPPERCASE RESTRICTIONS USING AN APPLE *****
----- From: Southwestern Adventist College -----
----- By: Steven R. Sowder -----

The December issue contained an article concerning problems using
an Apple as a terminal with its restrictions to uppercase
characters. The best solution we have found is to use Visiterm
as the terminal program. This program allows the user to input
upper and lower case characters without additional hardware for
the Apple. In addition, because Visiterm uses high resolution
graphics for display, it uses proportional spacing for the
characters. This gives you as much as 72 characters on a line.
If the user defines his own characters set (which Visiterm allows
you to do) he can get more than 72 characters on a line, although
there may be some loss of definition of the individual
characters. Visiterm also allows easy uploading and downloading
of files. We have used Visiterm to transfer programs from our
8000 to BTI's marketing 8000 to test compilers.

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***** BTI CSS DIVISION *****
----- Using Personal Computers with the BTI -----

The following nine pages are an unpublished technical bulletin
written by Greg Doudna. Greg was BTI's National Field Support
Manager in Sunnyvale. However, we are sorry to say, Greg
recently has began furthering his career outside the BTI Office.

He will be missed...

INTRODUCTION

There is increasing interest and inquiry from our customers, and potential customers, regarding the use of personal computers with BTI computer systems. This technical bulletin is intended to shed some light on that subject.

Why interface a personal computer to a larger computer? Some of today 's most useful software packages are only available on personal computers. Users of this productivity software often want to share data with other users or transfer PC data to a mainframe for integration into local applications. The mainframe may also be used as a public library of custom software and databases to be shared by other pc users, thereby reducing the amount of disk storage required at each distributed work station. Distributed work stations reduce system loading and therefore improve the production of work that is better suited for mainframe computations.

There is no mysterious science involved in successfully interfacing personal computers with the BTI 8000, nor for that matter connecting any two computers together. Only two questions need to be answered; is there a compatible hardware interface for both computers, and is there communications software available that provides for the transfer of recognizable data between machines?

We will first discuss what common hardware interface is available; its general specifications, the BTI 8000 implementation of this interface, and specific connection parameters. Then, having established the hardware connection, we will progress to the subject of communication software; its sources, features, related BTI 8000 protocols and utilities, and examples of file transfers between machines. The final section is an interesting suggested application, that should be of value to most every user.

COMPATIBLE HARDWARE INTERFACES

Personal computers generally offer both RS232C serial and Centronics compatible parallel interfaces. The parallel interface is considered an output only connection, generally used to port data to printers. The BTI 8000 provides RS232C interfaces for standard user input/output data. The interconnection of this common interface is the first requirement when establishing a data link between a personal computer and the BTI 8000.

THE RS232C SERIAL INTERFACE

This interface specification defines 25 signal lines, and their intended uses. The specification covers both synchronous and asynchronous communications. The BTI 8000 is currently only capable of asynchronous communication and recognizes 10 of the 25 signal lines. Its use of these signal lines varies depending upon whether it is using a modem or terminal interface.

Signal lines that transmit in one mode, become receivers in
another. Figure 1 identifies the function of the 10 signal lines
without respect to transmission modes, or device type. For most
applications, BTI recommends that customers use straight line, 10
conductor cables and reconfigure the port parameters verses building a
different cable for individual applications.

Signal voltage levels on an RS232C interface are allowed a wide
variation. The standard voltages used by BTI are +/- 12 vdc. RS232C
specifications for Data are:

1. Logic 0 SPACING state is between +3 and +25 vdc.
2. Logic 1 MARKING state is between -3 and -25 vdc.
3. Voltages between -3 and +3 are undefined.

Data transmissions are negative logic; ie., a logic 1 is -12 vdc
and a logic 0 is +12 vdc. Control/Status lines use positive logic and
are at +12 vdc in their active state.

Pin #	Signal Designation	Function
1	chassis ground	not always used
2	transmit data (TX)	line that device transmits on
3	received data (RX)	line that device receives data on
4	request to send (RTS)	transmitter signalling it wants to transmit to the receiver
5	clear to send (CTS)	receiver says it ready to accept a data transmission
6	data set ready (DSR)	modem signalling it is ready
7	signal ground	must be used
8	data carrier detect (DCD)	modem informing the attached device that it is communicating (linked with) another modem
9	+12 vdc	Current limited to 12 ma through a
10	-12 vdc	1K ohm resistor. May be used to tie receiver signals High or Low.
20	data terminal ready (DTR)	the device is ready/online
22	ring indicator (RI)	modem signalling that someone is calling, and that it has not yet answered

Figure 1. RS232C Signals Available at the BTI Port

Handshaking Between the Port and the Device

Because this is asynchronous communication, the transmitter
assumes that the receiver is capable of receiving the data being
transmitted. This implies that baud rates match and the receiver can
accept and process the data at the transmission rate. No attempt is
made by either party to synchronize or verify data transmission
receipt. They do however, use various methods of data flow control to
prevent data overrun at the receiving end. The 3 most common methods
are:

1. Baud Rate setting
2. XOn/XOff (not all software or PC hardware offers this)
3. Clear-To-Send-Processing (not applicable to modem links)

Port Configuration Jumper Plug

For each of 8 ports on the current BTI CIA 3 assembly, there is a jumper plug that indicates whether the attached device is a hardwired terminal or a modem. This plug actually switches certain signal lines from receivers to transmitters and vice versa. Figure 2 illustrates these signals and their direction for the corresponding plug position.

```
BTI Port      MODEM            Device  | BTI Port   TERMINAL         Device
 ┌───────────────────────────────────┐  ┌───────────────────────────────────┐
 │  1  ------ GND --------      *  ·  │  │  1  ------ GND ---------     *     │
 │  2  ------ TD  -------->     *     │  │  2  <------ TD  ---------    *     │
 │  3  <------ RD  --------     *     │  │  3  ------ RD  --------->    *     │
 │  4  ------ RTS -------->           │  │  4  <------ RTS ---------          │
 │  5  <------ CTS --------           │  │  5  ------ CTS --------->          │
 │  6  <------ DSR --------     *     │  │  6  ------ DSR --------->          │
 │  7  ------ GND --------      *     │  │  7  ------ GND ---------     *     │
 │  8  <------ DCD --------     *     │  │  8  ------ DCD --------->          │
 │ 20  ------ DTR ------->      *     │  │ 20  <------ DTR ---------    *     │
 │ 22  <------ RI  --------     *     │  │ 22  ------ RI  --------->          │
 └───────────────────────────────────┘  └───────────────────────────────────┘
```

Figure 2. BTI 8000 Port Signals Verses Port Plug Location

* Indicates signals that usually are a minimum for the indicated type of communication application. Some intelligent terminals require DSR. Many older terminals and serial devices perform Clear-to-Send processing, instead of XON/XOFF and therefore require RTS and CTS.

PC serial interfaces are most commonly design to connect directly to a modem with a straight line cable. Based on that premise, a user should be able to directly connect to a BTI port using the same cable, if the port plug is in the Terminal position.

COMMUNICATION SOFTWARE

Once an electrical connection has been established between two computers, then some form of controlling software is needed on at least one machine, in this case it would be the controller or master computer, that coordinates all data transfers between the machines. In general this controller would be the personal computer, accessing the mainframe. In its most simple form, such software turns a personal computer into an intelligent terminal with the ability to save all received data to memory or disk, or transmit memory or disk data to the mainframe through the terminal input port.

In general, mainframe operating systems are designed to be the Host (slave) in a relationship where the Host listens for and executes commands. Personal computers rarely act as a host, and as a result such software is of limited availability. This is often referred to as Bulletinboard software, as this is what is used by users groups to run their public access library systems. We will restrict our discussion to the situation where the PC is the Master, controlling the Host, as this is the most common application and software to accomplish this is readily available.

PERSONAL COMPUTERS

Software that is capable of data transmission and capture is required when the user desires to transfer data files between computers. This software is widely available for most PCs at varying prices and flexibility. A good source for this software is the local personal computer users group. Additionally most modems that are sold in the personal computer market are accompanied by communication software.

Terminal Emulation

Most users of personal computers either own or can obtain at low cost, terminal emulation software that will enable them to directly connect their PC to any RS232C asynchronous communication interface. In this application, the only requirement is that they properly match the interface signals, baud rates, number of data bits, and parity detection. Using this type of connection, a user may talk to any BTI system as though he were using a terminal.

This is not an effective nor efficient use of a personal computer. Terminals are simply cheaper. However, if a terminal is not available or a personal computer is the principal workstation, then this feature is desirable. What is required for a practical interface between a PC and a mainframe is data transfer and capture utilities.

Data Transfer and Capture

The transmission of 7-bit ASCII text between computers, without data verification, can be accomplished without programming on the BTI 8000. It's as simple as listing a text file created with +SCREDIT and capturing it on the PC. This is certainly useful, but it does not provide a full range of data transfer applications.

The successful transfer of binary or non-ASCII data, such as code files, or 8-bit ASCII is not a simple procedure. It can only be accomplished using advanced programming techniques. Such data transmissions require the establishment of a transmission protocol that both systems must operate jointly. These transmission techniques usually include data verification and automatic retransmission on error. An example of such software is the +COMM utility in the BTI 8000 System Library. This software is unique to BTI systems, and is not supported by any PCs. The most commonly used protocol for the transmission of binary data files between PCs is known as XMODEM (MODEM7 for CP/M users). There is currently no implementation of this protocol distributed by BTI.

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A comment here for those individuals who are new to this subject. Just because you can transfer a code file from one computer to another, that is no guarantee that you can execute that code file on a specific machine. Code files are machine language representations of a higher level language program. As such, their execution is machine dependent. A program compiled on an 8088 based machine will not execute on a 6502 microprocessor. The intent of this application with BTI systems is to provide a system library of standard programs that can be downloaded and executed by each user on demand, as well as archival storage of program files.

An important feature that communication software may offer is the concept of a "Data Filter". This allows the user to specify that specific incoming characters may be deleted or replaced with another character. For example:

BTI systems all send a Carriage Return / Line Feed at the end of each data record or text sentence. Many systems automatically insert a Line Feed after a Carriage Return, so in effect the resulting document is double spaced. By the selective use of the Data Filter, the user can strip out the unwanted Line Feed.

Many other special features are offered by various communications packages, but these features are to numerous to mention within the scope of this technical bulletin.

BTI 8000 SYSTEM

Because of the built-in flexibility of Control Mode and BTI System Utilities, ASCII file transfers between a BTI 8000 and PCs is relatively simple. However, a basic understanding of the serial interface protocol of the BTI is helpful.

The BTI 8000 is a 7-bit ASCII machine unless specifically reprogrammed by an application. All data transmissions for baud rates between 300 and 19.2K are 10 bits per character; 1 start bit, 7 data bits (the 8th bit is a Space), 1 stop bit, and no parity is recognized. Each data record is terminated with the Carriage Return & Line Feed characters in Control Mode. Basicx may also send the XOff character depending upon how your system is configured.

The BTI 8000 has several port interface parameters that may require modification by the user to successfully accomplish the desired data transmission activity.

Port Length: Does not affect terminal emulation or
              the transfer of data to the 8000 but,
              it may place unwanted "MORE" prompts
              in files being received by the PC.
Port Width: May or may not effect data transmissions,
              but a default setting of Zero is recommended.

Echo Mode: Does not affect data sent to the 8000,
but can interfere with data being
received at the PC. We advise ECHO=0.
If your PC communication software does
not have a local echo feature, then you
will not see commands or data sent to
a BTI system in this configuration.

Terminating Character Group (TCG): The setting of this
feature can affect the interruption of
system utilities. Control W and Carriage
Return are system defaults.

Alternate Break Character: Sometimes set to control C,
this can result in a process interrupt at
undesirable times.

XON/XOFF Protocol: When enabled, this pauses a process
when a control S is received at the BTI.
Control Q restarts the process. This protocol
may be required to control data flow when
sending data to a PC, but may be disabled
when receiving data at the BTI 8000.

(For detailed information on the above protocol parameters, please
refer to the BTI 8000 Terminal Communications Guide and Operator's
Manual)

BTI 8000 to PERSONAL COMPUTER COMMUNICATIONS

The following examples illustrate how to transfer serial,
ASCII files between the BTI 8000 and a personal computer. This
would be one of the principal applications of such an
interface. The procedures use currently available BTI 8000
utilities and it is presumed that the PC user has communications
software and understands it's usage. Special procedures, such
as false fronts, can be created by users, providing individual
needs.

Both of these procedures work with sequential access files
(SAFs) containing only 7 bit ASCII data. As previously stated,
8-bit ASCII and binary or code files will require programming
by the user to match the application.

Capturing Data on the BTI 8000

1. Make the electrical connection between the BTI and the PC
    and Logon to the BTI system via the PC.

2. Start the +COPY utility.

    >+Copy I=201 O=<filename>

    The input unit 201 is the default local input unit for
    the connected BTI port. The copy command sequence says;
    "Accept all data received at the port and save it in the
    file name indicated."

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3. Instruct the PC communication software to transmit the
    requested file.

4. Upon completion of the transmission, send a control W
    to terminate the Copy utility. Alternately you could
    include the control W as the only character in the last
    record of the transmitted file.

That's all there is to a simple data transmission and capture on
the BTI 8000. Alternate methods of capture can be accomplished. For
example, you could write a basic program that accepts input records
from the standard input device (the port) and saves that data to disk.
This process must be started prior to the data transmission, or may be
spawned by it by placing the appropriate Control Mode and Basicx
commands at the beginning of the file being transmitted.

Capturing Data on a PC

The following procedure will transmit a sequential text file from
the BTI 8000, out the standard output unit (the port), where it can be
captured by a PC connected to that port.

1. Issue the following BTI 8000 Control Mode command

    >PORT ECHO=0 WID=0 LEN=0

    This will prevent the MORE prompt from appearing, unwanted
    carriage returns and line feeds when record lengths exceed
    the port default, and prevent all future system commands
    sent to the BTI being echoed and captured in your data
    file on the PC.

2. Open a receive file on the PC and start the data capture
    routine.

3. Issue the following Control Mode command

    >LIST <filename>

4. When the transfer completes, instruct the PC to terminate
    the data capture routine.

The captured file will be different from the file on the BTI 8000.
It will contain an extra CarriageReturn/Linefeed and the Control Mode
prompt ">" at the end of the file. Remember that the capture utility
will record all received data and the BTI will send the Control Mode
prompt upon completion of listing the file.
If you encounter problems with this procedure, it may be data
overrun on the PC end. If so, enable XON/XOFF protocol on the BTI
port. If the PC supports this feature it should correct the problem;
otherwise, reduce the baud rate at which data is being transferred
between the machines.

Data Record Length Restriction Problems

The longest record that personal computers can transmit varies according to their individual operating systems, hardware design, and the communication software being used. This is generally not a problem when performing data transfers of text type files, as these record lengths usually fall well below any restrictions. Think of a record of text as being 1 line of characters terminated by a Carriage Return. This is usually 80 or fewer characters.

The various communications software on the market react differently with records that exceed the maximum length. Some truncate the remaining data in the record, others insert a Carriage Return and send the remaining data as a new record. This can result in the unintentional reformatting of textual documents produced by word processing software that defines a record as being all data in a paragraph.

ONE PRACTICAL APPLICATION

A PROGRAM DEVELOPMENT TOOL

Have you ever wished that the Basicx languages had an editor? Using a PC as an intelligent workstation, program origination or major rework can be accomplished using any available PC editor that is capable of producing serial ASCII text files. The source file can be downloaded from the BTI 8000 and captured on the PC, where it is easily manipulated. Once all changes and updates have been accomplished, the finished product can be sent back to the BTI system for live testing.

But Basicx files are stored in binary format on the BTI 8000 and as previously mentioned, no facilities are provided to accommodate the transfer of binary files? This problem can be easily circumvented when the following information is considered.

Standard input and output units for an interactive process on the BTI 8000 are 201 & 202, both assigned to the user port. All ports are asynchronous, serial data channels. When the user process enters the Basicx environment, Basicx converts all input/output requests for the standard units to serial data, automatically. Thus no special software tools are required to work in this environment, other than simple data capture and transfer software on the user's PC.

SUMMARY

We have identified the common hardware interface as the RS232C connection, and provided technical information for making a successful interconnection. Communication software requirements and features were discussed and a sequence of events for transferring data were provided. Lastly, an application was suggested as a starting point from which to build upon.

It is hoped that the information as presented in this technical bulletin will provide sufficient insight to the average user enabling them to successfully integrate PCs into their system applications. Please remember that BTI has staff familiar with this and other application solutions and that we may be contacted for further assistance.