Radio Shack

TRS-80™ Microcomputer NEWS

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P.O. Box 2910, Fort Worth, Texas 76101

THE MICROCOMPUTER NEWSLETTER PUBLISHED FOR TRS-80 OWNERS

Volume 3, Issue 1

Fort Worth Scene

TANDY CENTER

Happy New Year! This is the first issue of a New Year, with a new internal format and we are really looking forward to the exciting products of 1981.

IMPORTANT RECALL NOTICE

The following letter is being sent to all known owners of the QUME 26-1157 Daisy Wheel Printer.

This recall notice applies only if your printer is a QUME.

Your printer is a Qume if the documentation says Qume all over it. Also, the printer will not have the standard Radio Shack color scheme or labels. The Qume is the printer we substituted for the original WP-50 (26-1157).

IMPORTANT, IF YOUR PRINTER IS A QUME, PULL THE PLUG!

Do not use the printer again until you have had the printer repaired. If your printer is not a Qume, you may disregard this notice.

WARNING

An inadvertent wiring error in the AC input circuit of the Qume's 115 VAC Switching Power Supply could present a safety hazard. As a result of this error, a

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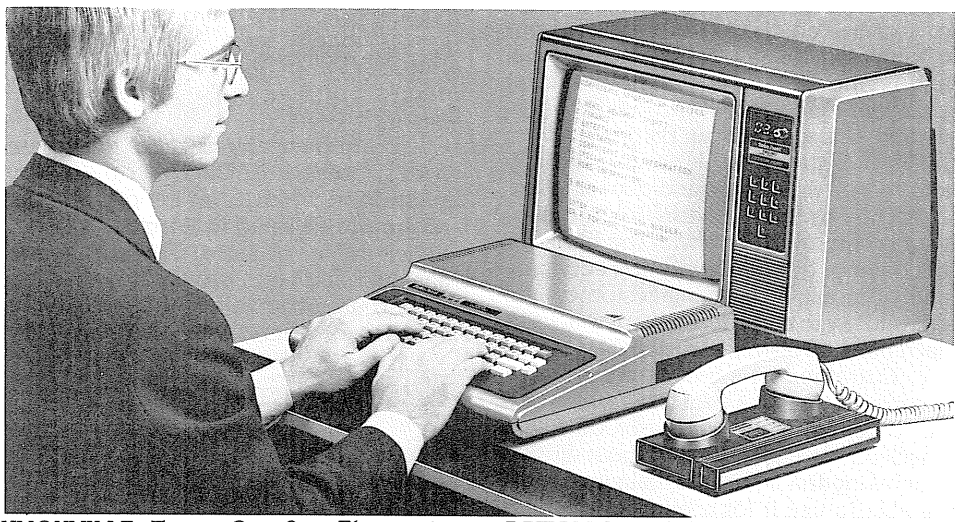
IT'S OFFICIAL: COMPUTER HOME BANKING HAS ARRIVED



KNOXVILLE, Tenn., Oct. 9 — Electronic home banking became a reality in Knoxville, Tenn. on Oct. 9. For the first time, consumers are able to use the services of their local bank with a computer at home. Such a program was announced in Knoxville and it is expected to be available nationwide in 1981.

The "Express Information" bank-at-home service is a joint venture of United American Service Corporation (UASC); Radio Shack, a division of Tandy Corporation and CompuServe, a subsidiary of H & R Block. The United American Bank in Knoxville was selected as the first bank to use and market the service to its customers.

For an estimated price of $15 to $25 a month, 400 of the bank's customers will gain services of Radio Shack's new TRS-80 Color Computer, including a standard keyboard, which plugs into the customer's own television set and telephone. Customers will have access to a comprehensive news and financial advisory service, be able to pay most of their bills, receive current information on their checking accounts, use a sophisticated bookkeeping service, and apply for loans. This opens a new dimension in convenience banking.

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Home Banking (From Page 1)

These services are being offered to customers in Eastern Tennessee in phases. "We are releasing these programmed services in phases to allow our customers adequate opportunities to familiarize themselves with in-home computer use," Thomas E. Sudman, UASC President, explains. "As their expertise and needs increase, the sophistication of the information services increase."

The first phase includes a news and information network developed by CompuServe of Columbus, Ohio. CompuServe President Jeff Wilkins says customers can choose information from a "shopping list" of national, international and financial news, including the latest stock quotation and commodities information. United American Bank will add to this system their bank news and daily information on savings and deposit rates.

The remaining phases include two-way communications with the bank for bill paying, bookkeeping, tax services, and electronic mail, giving customers the opportunity to communicate messages to each other through the system.

Customers of the bank are issued a security pack and a certificate which can be redeemed at any of the 6,000 Radio Shack outlets nationwide. Without directly purchasing the ccmputer, customers will be able to use it for a number of other functions: entertainment, education, home security, message services and electronic filing, to name a few.

"The TRS-80 Color Computer was selected because of its high quality color graphics," John V. Roach, President, Tandy Corporation, said. "It also gives the customer a full BASIC language computer and the opportunity to write his own program in addition to its banking and information services."

A commitment to in-home banking was expressed by Jake F. Butcher, Chairman, President and Chief Executive Officer of United American Bank:

"We are delighted to be chosen as the first bank in the country to offer these computer services. Our desire is to offer our customers the most sophisticated service possible. The technology is there, our reports indicate that customer demand is there and we are ready to be the first bank to offer what they have been asking for — convenience banking without leaving home."

Important Notice to Model II Users:

We have discovered that some recent shipments of 8-inch diskettes were defective. Disk errors and failure will typically occur after either extended storage, or use of the diskette for about five hours. These failures are often diagnosed as hardware trouble. The defective diskettes can be identified by a five-digit alphabetic code on the diskette jacket. If the first three letters correspond to one of those listed below, the diskette is probably defective and should be replaced.

Defective codes are any five-letter codes, beginning with the following three letters:

HBL--	HZA--	HZE--	HZF--	JXS--
JXM--	JXN--	JYL--	JZA--	JZB--
KYD--	KYU--	KZT--	LAB--	LAC--
LAE--	LAF--	LAG--	MAN--	NAE--
PAF--	PAG--	QAK--		

If you have any diskettes with these codes, make a BACK-UP copy of any information which is on the diskette and return the diskette to your local Radio Shack dealer or store. The stores and dealers have been provided with information about replacing these defective diskettes for you.

Reduce Fractions

This program for reducing fractions was supplied by 13 year old Arthur Scialabba of Danbury, Ct.

```
10 CLS
20 'BY ARTHUR SCIALABBA
30 'DANBURY, CT.
40 INPUT"WHAT IS THE
   FRACTION (A/B=A,B)";
   A, B
50 IF A>B THEN 70
60 FOR X=2 TO B: GOTO 80
70 FOR X=2 TO A
80 IF A/X<>INT(A/X)
   THEN 160
90 IF B/X<>INT(B/X)
   THEN 160
100 A=A/X
110 B=B/X
120 GOTO 50
130 PRINT"FRACTION REDUCED
   TO ="; A; "/"; B
140 INPUT"DO YOU WANT
   ANOTHER 1)YES 2)NO";
   Z
150 ON Z GOTO 10,180
160 NEXT X
170 GOTO 130
180 END
```

For this program, input your fractions as numerator, comma, denominator. This program does a very good job of reducing fractions fairly quickly.

Important Notice to Model I/III Applications Programmers

If you are writing programs (of any type) for the TRS-80 Models I and III, and you want a single program to be able to load and operate in either machine, here is a tip from Radio Shack System Software Group that may help:

Memory location 0125 Hex will "always" equal 49H in a Model III, and "never" equal 49H in a Model I.

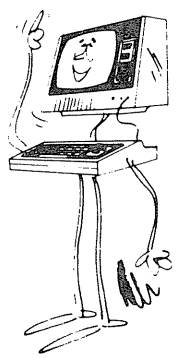
As you are aware, there ARE differences between Models I and III, and it is sometimes necessary to write a particular routine just a little differently for each machine. By PEEKing location 0125H, your program can know which machine it is operating in, and set an appropriate flag. This will allow a single program with routines for both the Model I and III to operate correctly without your having to ask the operator what type machine is being used.

A Note to Line Printer VI Users:

Radio Shack's new Line Printer VI (26-1166 $1160) has graphics capabilities! With this new feature, unfortunately, also comes a new "problem." Graphics characters place a heavier "load" on the print head than do text characters. If you print too many graphics characters without pausing, the print head could overheat, causing the fuse to blow.

When you must print graphics continuously, you must pause for at least one minute after each 1/6th page is printed (this assumes a 15"x11" page). This pause will prevent the unit from overheating.

Note: In terms of "load" on the print head, the underline character falls into the graphics category, and should be treated accordingly.



Prime Factors of Third Degree Equations

The following program (with slight modifications to the print routines by us) was sent in by William Myers of Port Huron, Mich. The program will supply approximate values for the real roots of third degree equations (equations of the form—A*X↑3 + B*X↑2 + C*X + D).

```
 10 REM FIND REAL ROOTS
    OF A THIRD DEGREE
    EQUATION.
 20 INPUT"THE
    COEFFICIENTS ARE";
    J, K, L, M
 30 CLS
 40 PRINT@0,"THE EQUATION
    YOU WANT TO FACTOR
    IS"; J; "*X↑3+"; K;
    "*X↑2+"; L; "*X+";M;
 50 E=10.01
 60 FOR A=2000 TO 1
    STEP -1
 70 PRINT@64, "#70:"; GU;
 80 PRINT@128, "",
    "80:::"; A, "COEFF:"
    J ":" K ":" L ":" M;
 90 E=E-.01
100 E=CINT(E*100)/100
110 GH=E*J+K
120 GT=GH*E+L
130 GU=GT*E+M
140 IF GU>.1 THEN 190
150 IF GU<-.1 THEN 190
160 N=N+1
170 PRINT@128+N*64,"THE
    FACTORS ARE"; E;
180 FOR B=1 TO 1500:
    NEXT B
190 NEXT A
200 REM THE FACTORS ARE
    'E' AND THEIR
    PRECISION IS SET IN
    LINES 140 AND 150
210 GOTO 210
```

This program begins looking for roots at E=10.01. If this is not high enough, change the value of E in line 50. The precision of the answer is controlled by the decimal in lines 140 and 150. Each third degree (Cubic) equation will have three roots. Of these, two may be "imaginary" and not revealed by this program. If you get more than three values, or if the values are very close together you may wish to increase the precision by changing the value in lines 140 and 150 to .001 or even .00001.

Biological Rhythms Ultimate Computer Encounter (B.R.U.C.E.)

B.R.U.C.E. was provided by Bruce Dewees of Jacksonville, Fl. If you happen to have a subroutine which inputs two dates and calculates the number of days between two the dates, DELETE line 30 and change line 40 to:

```
40 GOSUB 1000
```

Then insert your subroutine beginning at line 1000. (See the Julian Date Computer in this issue.)

This program was written for a 4K Level II Model I.

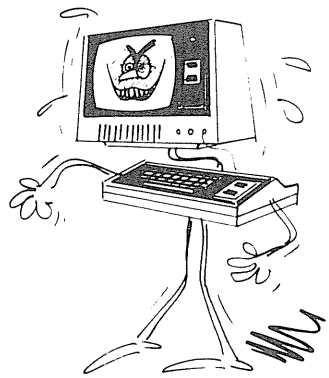
```
 10 PRINT"BIO-RHYTHMS FOR
    ONE ";
 20 PRINT"CYCLE OF 33
    DAYS"
 30 PRINT"ENTER THE
    NUMBER OF ";
 40 INPUT"DAYS SINCE
    BIRTH";B
 50 PRINT TAB(5),
    "PHYSICAL",
 60 PRINT"EMOTIONAL",
    "INTELLECTUAL"
 70 FOR D=B TO B+33
 80 IF D-B=11 THEN GOTO
    190 ELSE IF D-B=21
    THEN GOTO 190
    ELSE GOTO 120
 90 PRINT TAB(5),
    "PHYSICAL",
100 PRINT "EMOTIONAL",
110 PRINT "INTELLECTUAL"
120 PRINT D-B;
130 PRINT TAB(5),
140 PRINT SIN(.0174533*
    360*D/23),
150 PRINT SIN(.0174533*
    360*D/28),
160 PRINT SIN(.0174533*
    360*D/33)
170 NEXT D
180 GOTO 220
190 FOR T=1 TO 1500:
    NEXT T
200 CLS
210 GOTO 90
220 CLS
230 FOR W=23 TO 34 STEP 5
240 PRINT@512, "0";
    STRING$(18,"-");
250 PRINT "10";
    STRING$(19,"-");
260 PRINT "20";
    STRING$(21,"-");
270 FOR D=B TO B+33
280 Y=1+SIN(.0174533*
    360*D/W)
290 SET((D-B)*127 /33,
    47-23.5*Y)
300 NEXT D,W
310 GOTO 310
```

Julian Date Computer

This program was supplied by Dona Erb of Pearland, Tx. for the Model II or a Model I with disk drives. Ms. Erb indicates that the original algorithm came from UNIVAC/CYBER. We have modified it to work with a 16K Level II Model I and the B.R.U.C.E. program listed elsewhere in this Newsletter.

```
    5 DEFINT I
    7 DEFDBL J
1000 FOR N=1 TO 2
1010 INPUT"ENTER
     DATE(MM,DD,YYYY)";
     IM(N), ID(N), IY(N)
1020 J(N)=ID(N)- 32075+
     INT(1461*(IY(N)
     +4800+ FIX((IM(N)
     -14)/12))/4)+
     INT(367*(IM(N)-2-
     FIX((IM(N)-14)
     /12)*12)/12)-
     INT(3*INT(INT((
     IY(N)+4900+FIX((
     IM(N)-14)/12))
     /100)/4))
1030 NEXT N
1040 B=ABS(J(2)-J(1))
1050 RETURN
1060 FOR N=1 TO 2
1070 PRINT"JULIAN DATE
     FOR"IM(N); "/";
     ID(N); "/"; IY(N);
     "IS"; J(N)
1080 NEXT N
1090 PRINT"NUMBER OF DAYS
     BETWEEN THE DATES
     IS";B
1100 END
```

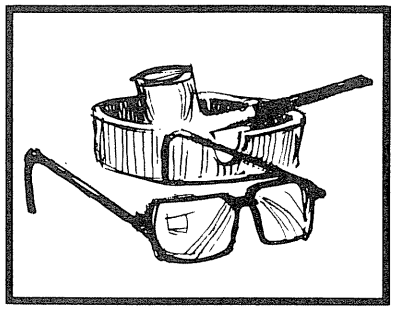
Be sure that you enter line 1020 very carefully, there are a lot of parenthesis in there! If you are using this as a subroutine for the Bio-rhythm program, DELETE lines 1060-1100. If you are using this as a stand-alone program, DELETE line 1050.



Roman Numeral Conversions

Everyone should have at least one Roman Numeral Conversion program in their library. This program is one of the neatest that we have seen and we finally had the room to pass it along to you. Even if you don't convert roman numerals every day, you may want to study the use of strings and string handling in this program. The technique might be useful if you ever have to convert arabic numerals to decimal!

```
 10 REM * ROMAN NUMERAL/DECIMAL NUMBER
    CONVERSION PROGRAM *
 20 REM *** WRITTEN BY: ROBIN EDWARDS
    ***
 30 REM ***** *****
 40 CLEAR 200: DIM C$(15), D(16),
    E$(4), F$(4)
 50 PRINT"FOR ROMAN NUMERAL TO DECIMAL
    CONVERSION, ENTER'ROM'"
 60 PRINT"FOR DECIMAL TO ROMAN NUMERAL
    CONVERSION, ENTER 'DEC'"
 70 PRINT"TO END PROGRAM, ENTER 'END'"
 80 INPUT Z$
 90 IF Z$="ROM" THEN 130
100 IF Z$="DEC" THEN 380
110 IF Z$="END" THEN 730
120 PRINT"INVALID RESPONSE. PLEASE RE-
    KEY.": GOTO 80
130 PRINT"INPUT ROMAN NUMERAL EX.:
    MCMLXXX "
140 PRINT"TO END PROGRAM, ENTER 'END'":
    INPUT A$
150 IF A$="END" THEN 50
160 A=0
170 B=LEN(A$)
180 FOR I=1 TO 15: C$(I)=" ": NEXT I
190 FOR I=1 to 16: D(I)=0: NEXT I
200 FOR I=1 TO B: C$(I)=MID$(A$,I,1):
    NEXT I
210 FOR I=1 TO B
220 IF C$(I)="M" THEN D(I)=1000:
    GOTO 300
230 IF C$(I)="D" THEN D(I)=500:
    GOTO 300
240 IF C$(I)="C" THEN D(I)=100:
    GOTO 300
250 IF C$(I)="L" THEN D(I)=50: GOTO 300
260 IF C$(I)="X" THEN D(I)=10: GOTO 300
270 IF C$(I)="V" THEN D(I)=50 GOTO 300
280 IF C$(I)="I" THEN D(I)=1: GOTO 300
290 PRINT"BAD INPUT ";C$(I);" NOT
    ACCEPTED": GOTO 130
300 NEXT I
310 FOR I=1 TO B
320 IF D(I)>D(I+1) THEN A=A+D(I):
    GOTO 350
330 IF D(I)<D(I+1) THEN A=A-D(I):
    GOTO 350
340 A=A+D(I)
350 NEXT I
360 PRINT"ROMAN NUMERAL IS ";A$;"
    DECIMAL NUMBER IS";A
370 GOTO 130
380 PRINT"INPUT DECIMAL NUMBER EX.:
    1980"
390 PRINT"TO END PROGRAM, ENTER 'END'":
    INPUT A$
400 IF A$="END" THEN 50
410 B=LEN(A$): Y=0
420 FOR I=1 TO 4: E$(I)="": NEXT I
430 FOR I=1 TO 4: F$(I)="0": NEXT I
440 IF B=4 THEN R=1: GOTO 490
450 IF B=3 THEN R=2: GOTO 490
460 IF B=2 THEN R=3: GOTO 490
470 IF B=1 THEN R=4: GOTO 490
480 PRINT"NUMBER ";A$;" OUT OF RANGE":
    GOTO 380
490 FOR I=R TO 4: Y=Y+1:
    F$(I)=MID$(A$,Y,1): NEXT I
500 J$="C": K$="CC": L$="CCC": M$="CD":
    N$="D": O$="DC": P$="DCC":
    Q$="DCCC": R$="CM"
510 IF F$(1)="0" THEN 560
520 IF F$(1)="1" THEN E$(1)="M":
    GOTO 560
530 IF F$(1)="2" THEN E$(1)="MM":
    GOTO 560
540 IF F$(1)="3" THEN E$(1)="MMM":
    GOTO 560
550 PRINT"NUMBER ";A$;" IS TOO LARGE.
    TRY AGAIN.": GOTO 380
560 FOR I=2 TO 4
570 IF F$(I)="0" THEN 680
580 IF F$(I)="1" THEN E$(I)=J$:
    GOTO 680
590 IF F$(I)="2" THEN E$(I)=K$:
    GOTO 680
600 IF F$(I)="3" THEN E$(I)=L$:
    GOTO 680
610 IF F$(I)="4" THEN E$(I)=M$:
    GOTO 680
620 IF F$(I)="5" THEN E$(I)=N$:
    GOTO 680
630 IF F$(I)="6" THEN E$(I)=O$:
    GOTO 680
640 IF F$(I)="7" THEN E$(I)=P$:
    GOTO 680
650 IF F$(I)="8" THEN E$(I)=Q$:
    GOTO 680
660 IF F$(I)="9" THEN E$(I)=R$:
    GOTO 680
670 PRINT"THE DIGIT ";F$(I);" IS NOT
    VALID.": GOTO 380
680 IF I=2 THEN J$="X": K$="XX":
    L$="XXX": M$="XL": N$="L": O$="LX":
    P$="LXX": Q$="LXXX": R$="XC":
    GOTO 700
690 IF I=3 THEN J$="I": K$="II":
    L$="III": M$="IV": N$="V": O$="VI":
    P$="VII": Q$="VIII": R$="IX":
    GOTO 700
700 NEXT I
710 PRINT"DECIMAL NUMBER IS ";A$;"
    ROMAN NUMERAL IS ";E$(1);E$(2);
    E$(3);E$(4)
720 GOTO 380
730 END
```



View From the 7th Floor

by Jon Shirley, Vice President Computer Division

I am writing this in November after we have elected our new President and as you read it we are in a new year. Both represent new opportunities and while I will not get into politics (that's Mr. Kornfeld's domain), I will crystal ball gaze a little for you about our product line.

Disk for Color Computer

As our Catalog says, the Color Computer will get a disk system during 1981, probably about mid-year. It will not turn the Color Computer into a small business accounting machine but it will provide a way to get really creative with graphics. Those of you patient Color Computer customers who want the Extended BASIC (and once you see it you won't be able to live without it) will find it available by the 15th of this month.

Model II Survey

Will the Model II get any new hardware??? We are in the middle of tabulating a survey of Model II customers and we will bring out some of the most requested items. A hard disk is a good possibility. All you Mod II owners who responded to our survey, thanks very much, we value your input and we will make some changes thanks to your help.

Model I

During November we had our annual shareholders meeting and it was announced that manufacturing of the Model I computer would stop prior to the end of 1980. The decision came about for a number of reasons, but one of the main ones was that to meet the new FCC regulations we would have had to redesign the entire product, case and all. The effect of such a redesign would have been to make the cost of the Model I as much as the Model III, which did not make much sense considering the many new features of the Model III. As I write this (remember, it's November) there are still a lot of Model Is in our stores, although they will be scarce by January.

So, where does this leave you Model I owners? Still *fully* supported as all we have dropped is the Model I CPU. We are still making expansion interfaces, all upgrade kits, disk drives, etc. and we will continue to make them as long as there is a demand. We will not only continue almost all Model I software, but we have new Model I software in development that will increase the utility of your computer. It was not easy to decide to stop making the most successful product in Radio Shack's history, but I want to assure you that we value all you Model I owners and we will continue to offer all the support you need.

Will there be any new Model I hardware? Yes there will. Look for a neat, cheap modem very soon that will work with all our computers but has an extra for you Mod I owners. And there are a couple of other goodies in the works that will be out soon.

Printers?

One new one makes its debut this month, the Line Printer V. 160 characters per second and only $1860!

One thing that is sure in the computer business, outside of Murphy's Law, is that the technology is ever marching forward to bring out better, and sometimes cheaper, computers and peripherals. Of course you can always wait for the latest and best and in so doing wait forever and never take advantage of the computing power available today.

Software

Of course there will be more software for all our computers. Right now there are over 80 new programs in development. Radio Shack software has come a long way in the last three and one half years since Blackjack and if you have not looked at our selection lately you should —you just might get a nice surprise.

CPM

Will we bring out CP/M for any of our computers? No we won't. It's not just pride of authorship and the fact that TRSDOS is a much better users system with better documentation but the fact that there is no CP/M. There are at least four of them and they are NOT compatible. The applications program you buy on Brand Y CP/M will not run on Brand X CP/M. Even the disk sector sizes are not the same. Of course there is a lot of CP/M based software out there, and everyone has a Model II version, so there is really little reason for us to attempt to support two different operating systems.

Software Sourcebook

Speaking of software, the new expanded Software Sourcebook is now available and has over 1,600 listings! We did raise the price to $1.95 but it's still an incredible buy. Keep those listings coming in.

Model II TRSDOS 2.0

In this issue of the Newsletter there is a section on the Model II TRSDOS 2.0 and how to keep your data intact.

Data Processing Basics

Good data processing practices are not followed by a lot of users and by a lot of programmers. Let's review a few basics that every computer user should know.

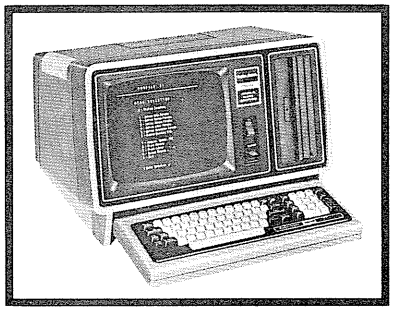
1. When you start using a new program that replaces either an old program or a manual system you should run both together for as long as needed to be sure the program is working correctly. With most accounting software two to three months should be enough but when you end the third month do a test year end close to be sure all the program is working correctly.

2. Make BACKUPS! How many, how often? This depends on how valuable the information is and also how difficult it would be to re-enter the information if you did lose it. In business applications you should probably back up a minimum of every day and if you are running a program that gets data entry all day you should back up every few hours. Diskettes are really cheap and reuseable compared to several hours of data entry. Hint —before you reuse a diskette, use a bulk eraser to wipe it clean and re-format it. This will insure that any flawed tracks are found. Also when you first use a diskette, date it. Diskettes do wear out. File them in a cool place, upright position and handle them carefully. Most diskette failures are not from wear but from poor handling.

3. If you are a programmer or have hired one, good data practice states that you never put the user in the position of changing a diskette without the screen telling him to do so or that the program has ended. We have had a lot of people complain about the lack of activity lights on the Mod II expansion bay (for which we are sorry, but that drive is made by the second largest manufacturer of drives and they have never used lights). It's not the lack of activity lights that cause problems, it's bad programming. A lot goes into making a program "bullet proof" and we spend more time testing software than we do writing it. If you do use an outside programmer be sure he tests it, not you.

4. Of course there are a lot of other good rules to follow, like extensive error trapping, not leaving files open for long periods of time etc., etc. and we hope to have a book available on the subject of good programming in the near future.

Until next month.



Model II

Product Line Manager's News

Last month I told you a bit about PROFILE II. This month I'd like to back up a little and cover something that is universal to the Model II — TRSDOS. More specifically, I'll cover our new Version 2.0, some of it's advantages and a few (hopefully) of the reasons that we did things the way we did.

TRSDOS Compatability

One question that is in everyone's mind is "... why isn't Version 2.0 compatable with Version 1.2?". Primary emphasis on Version 2.0 was to facilitate error recovery thru the addition of certain enhancements. For one, an "Alternate Directory" is present on all FACTORY Version 2.0 diskettes. This required a specific re-allocation of the disk area which isn't a simple change. The layout of the directory was also changed to make the system more reliable in a user environment.

Alternate Directory and Verify

It is possible to create a system diskette without the alternate directory by specifying during the FORMAT: `FORMAT :d (ALT=00)`. For a little more speed, you may also specify **VERIFY DETECT OFF**, but this should be done with care. Realize that you are gaining a little speed on program and data access but you are giving up your chance for recovery of a lost directory, you are not re-reading or 'verifying' what is being written to the disk, and you are not checking the ID of the disk before writing to it. For these reasons, we do not recommend deleting the alternate directory or turning VERIFY DETECT off.

Library Commands

There are 13 new library commands:

• **ANALYZE** will give a track-by-track layout of the programs on the disk.

• **HOST** (you asked for it) allows the Mod-II to be controlled from another terminal thru the RS-232 port. It does not allow screen formatting.

• **SPOOL** saves all printer output as a disk file for printing at a more convenient time.

• **STATUS** returns a chart showing the current status of DO, DEBUG, SETCOM, SPOOL, HOST, and 'top of user memory.'

• **T** sends a TOP-OF-FORM command to the printer.

• **SCREEN** will copy the screen to a printer.

• **DUAL** is a routing feature that will send a copy of everything to a printer at the same time it is going to the screen.

• **HELP** gives a list of all commands that have additional HELP available. When used with a command, it will show the options, switches and extensions that are to be used.

• **RECEIVE** uses the RS-232 port for input of an INTEL HEX format file and will store it on disk with the proper addresses needed.

• **RESET** is the same as pressing the reset switch. The advantage is that it can be called from BASIC.

• **MOVE** is normally used with a multi-drive system in place of COPY. It may be used with a 'WILD-CARD' (*) to move a number of files that have a common extension or part of the file name such as `MOVE */BAS:0 TO :1`. This would COPY all files from drive 0 to drive 1 that have any file name ending with the extension /BAS.

• **PRINT** will print any text file.

• **ECHO** allows you to type information to the display without having the operating system interpret it as a command. With DUAL routing turned on, it will also send it to the printer.

Other Changes

There were changes to 15 of the existing Library commands. I will only cover the 8 commands that had significant changes.

• **AUTO** may now be overridden by pressing HOLD after you enter the date and before you enter the time.

• **BACKUP** has too many new features to cover here.

• **DIR** now includes the last date that the file or program was updated and the number of sectors used.

• **FORMAT** no longer requires a password or an ID. You may specify which track you want the directory on and whether or not you want an alternate directory. This is the only way to create a TRSDOS 2.0 diskette that does not have an alternate directory.

• **FORMS** now contains a switch that tells the system to ignore all printer output. (dummy mode)

• **SETCOM** with no parameters will now return the status of each channel.

• **TERMINAL** now uses the BREAK key to return to the main menu instead of the HOLD key. The HOLD key will now halt the display of the ram buffer.

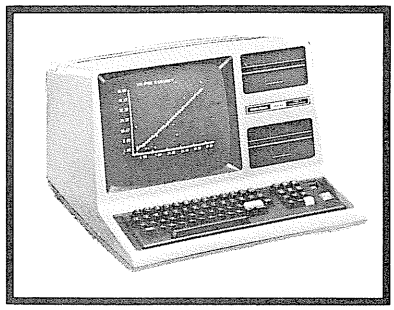
• **VERIFY** now has a switch for DETECT (on/off) that forces a verification of the diskette ID before writing to that disk.

Caution

A **STRONG** word of caution, although you may convert any existing 1.2 diskette up to the 2.0 version, you should **NOT** try to convert any existing RADIO SHACK application software. This software was written and tested on TRSDOS 1.2 and in some cases it contains routines that are located in memory areas of 1.2 that are not available to the program in TRSDOS 2.0.

Also, do **NOT** try to use a 1.2 diskette in the system at the same time you are using a 2.0 diskette. Your data or program **WILL** be destroyed. The **ONLY** exception is when you are converting a diskette from 1.2 to 2.0. If you have been using a 1.2 operating system and remove it to use a program on 2.0, you **MUST** remove the 1.2 diskette, press reset, then insert the 2.0 diskette.

BYTE



Model I/III

Product Line Manager's News

Let's take a look at the many differences between the Model I and Model III. By now most of you have been in to see a Model III, or have read our ads. Hopefully, you already know enough about the Model III to realize that the Model III is not simply a repackaged Model I, as some suspected. If you go through our Model III Operation and BASIC Reference Manual (catalog number 26-2112, $5.95) or our Model III Disk System Owners Manual (catalog number 26-2111, $6.95) you are going to find out quickly that this is not the "same song, second verse." We have certainly packaged the III in answer to many suggestions from you, and designed in some very intentional similarities to the Model I, but the III is much more than a Model I in different clothing. I'll outline the comparisons in price, ROM features, physical descriptions, TRSDOS, and Disk BASIC for you. If you have been at sea, marooned on an island or otherwise haven't kept in touch with your local Radio Shack to become familiar with the pricing information on the Model III, its general capabilities, and configuration choices then come in and pick up a new computer catalog (RSC4), because I am not going to repeat our ads and catalog information here.

Price Comparison

Look closely at the catalog prices for both Model I and Model III and you will find that we brought out the Model III to give you a real price break. For example, when you upgrade a Level I the charge is $150.00 for the Level II ROM and another $200.00 for the 16K RAM and keypad upgrade (plus installation).

In the case of Model III, we give you the Model III BASIC ROM and 16K RAM for a total of only $299 (again plus installation). A Model I owner who upgraded his 16K Level II system with an Expansion Interface (E/I — to get printer capabilities) spent $1148.00. The Model III with Model III BASIC is only $999.00 and includes the elements of the optional E/I of the Model I and more. The Model I 16K Level II that grew to become a two disk drive business system with a 16K E/I, Lower Case Kit, and an RS-232 came in at $2,456.50 including installation. The Model III 32K disk system with two drives and an RS-232 cable comes in one package at $2,514.95. Wait a minute! That doesn't sound like a price advantage does it? The Model III's double density disk drives provide approximately 310K of available storage on two drives (compared to 138K for two Model I disk drives) so a comparable Model I would cost $3454.50 with the addition of drives 3 and 4. Since we

. . . approximately 310K of available storage on two drives . . .

can still add two more external drives to the Model III (for a system total of about 670K of available disk space) there is no direct price comparison to the Model III disk system with four drives. If you now begin putting a price tag on all of the additional features of the Model III you begin to see that we're providing you with an even better price advantage.

ROM Enhancements

We have enhanced the BASIC ROM's of both Level I and Level II. In the case of Level I we have added LLIST and LPRINT for easy printing capability. The Model III BASIC ROM includes an extra 2K to pro-

We have enhanced the BASIC ROMs of both Level I and Level II.

vide the features I'll cover. (It does use 258 bytes more RAM for internal use.) The owners manual includes a 24 page Technical Information Section that includes sample Z-80 programming and examples of the use of BASIC's USR function for Model III BASIC ROM calls including System Control, Cassette I/O, Keyboard Input, Printer Output, RS-232 Control and Video Display Output. A memory map, ROM addresses and important RAM addresses are also shown.

Video Enhancements

Video locations are the same but we have added lower case and a special character set which includes 96 symbols for the greek alphabet, division, cents, a pointing finger for annotation, faces and even card suites. Obviously some of these are just plain fun but many are also very useful in business applications. A scroll

. . . we have added lower case and a special character set which includes 96 symbols for the greek alphabet, division, cents, a pointing finger for annotation, faces and even card suites.

protect function protects up to seven lines at the top of the video and is great, for example, in protecting column headings in a table. The cursor is definable and can be set to on, off, blinking or solid. You can select any character from 0 to 255 for the cursor character (this gives you ASCII characters, graphics symbols and even the special characters as possible cursor characters!). By the way, since Model III produces standard ASCII characters for codes 32 thru 127 (unlike the Model I), it doesn't produce an up arrow, down arrow, left arrow, or right arrow on the video. The keyboard or software initiated screen print function is for printing a "snapshot" of what is on the screen (with the exception of screen graphics) and should reduce coding requirements in many new applications and offer flexibility

. . . regarding the video, it is the same hi-resolution monitor you have seen on our Model IIs . . .

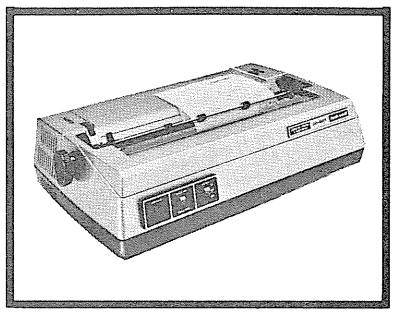
where line printer reports are already programmed. Finally regarding the video, it is the same hi-resolution monitor you have seen on our Model IIs, and it is an improvement over the Model I video.

The keyboard, on the surface, looks the same but its circuitry and contact design make it virtually bounceless. The new keyboard repeating feature saves a lot of time, too. I like it better than a repeat key . . . all keys repeat after about a 1 second depression. For upper and lower case, the keyboard default condition is caps. The SHIFT-0 toggles the keyboard

. . . Model III lets you interrupt a cassette, line printer, or RS-232-C operation . . .

between all caps and upper lower case. There is a difference in how characters are stored (see the Education Page for a discussion of programming differences). Also, unlike Model I, the Model III lets you interrupt a cassette, line printer, or RS-232-C operation (and do it without losing your resident program) by holding down the BREAK key.

Continued on Page 12



Peripherals

Product Line Manager's News

Happy New Year! I trust you all survived the holidays. Here's hoping that one of your New Year's resolutions is to make it a habit to read this column every month. One of mine is to learn how to spell "peripheral." Santa was generous to Tandy this year. Lots of new goodies are turning up in the warehouse every day now!

I can tell you about some of them now. Next month... watch out!

Dust Covers

We have dust covers for all our printers (Yes Bruce, all but QP II.)

Media Labels

We have added packages of blank labels for all our media. The diskette labels (26-306 pk 100 for 5¼-inch disks $1.95, 26-4908 pk 50 for 8-inch disks $1.95) are large with plenty of room for index information. The cassette labels (26-303 pk 100 $1.95) are suitable for both programs and data. The writing surface is smear resistant and the labels are peelable. Please remember to use a felt tip marker when adding information especially to labels affixed to diskettes.

Organization Aids

There are two products which should be of help to those of you busy at work developing your own software packages. A deluxe, brown padded three ring binder with a blank index card for the spine (26-1310 $4.95) is now available. You can insert your own documentation along with our vinyl diskette pockets (26-510 pk 10 for Mini-disks $7.95, 26-4907 pk 10 for 8-inch disks $7.95) for media. For your tape applications you can now purchase a pack of two cassette trays (26-1311 $3.95), each holding six tapes and punched to fit the binder. You asked for 'em... come in and buy 'em.

New 5¼" Diskettes

Beginning this month all of the 5¼" diskettes we ship will be Certified 40 Track diskettes. How can you tell if the Radio Shack diskettes you are buying are certified for 35 or 40 tracks? Well, all of our 40 track diskettes will come with a reinforced center ring. So, if the center is reinforced it is 40 track, otherwise it is 35 track.

No More Glare

Do you spend long hours staring at your CRT? Has your secretary asked for an increase in his/her eyedrop budget? Does glare from your overhead lights interfere with your galaxy scans? You, my friend, need Radio Shack's new Anti-glare Screen. It eliminates most glare and reflection without degrading resolution and it enhances contrast as well. It attaches easily to Model I, II and III. All this for only $13.95 (26-511). (It will not work on color monitors. Sorry about that Barry!)

PRODUCT KNOWLEDGE CORNER

A glance at RSC-4, our action packed computer catalog, will tell you that one of the most proliferating line of peripherals (try saying that after a long day) is our printer family. Which one is best for you? How can you justify that outlay of cash to your CPA... or your better half? I could answer "read the specifications" but that could just add to your confusion!

Have no fear. I have a better solution. Each month, I will devote a section of this page to a brief explanation of some element of printer performance. Pay attention and you'll be able to quote "buzz" words with the best of the pros. And, if I do it right, you'll know what you're talking about! An informed decision about a purchase will lead to a happy and fruitful relationship between you and your new printer.

Printer Speeds

One of the most important considerations and one of the most mis-understood is print speed. Most vendors quote speed as CPS — characters per second. This refers to "raw speed": How fast does the printer lay down each character. 'Nuff said?... No way! There are many factors which can affect your printer's "throughput," an expression of the time it takes your printer to finish the task you set up for it.

Lines-per-Minute

Referring again to RSC-4 (I'm going to force you to get one. Grab one before it gets out of date!), you will notice that we list speed as LPM — "lines-per-minute." If you compare the LP II and the LP VI you will notice they have the same "raw speed" (100 CPS). (Sometimes when talking about R/S printers I think that I'm living in ancient Rome!) If you compare the LPM figures (SEE?... Buzz Words!) of these two machines you will find a different story. The LP VI prints more 13 inch lines per minute (33 LPM) than the LP II prints 8" lines (31 LPM)! Why you ask? ... the answer is carriage motion. The LP VI is bi-directional (it prints coming and going) while the LP II prints in one direction only.

Logic Seeking?

Another factor which greatly impacts throughput is the "logic seeking" feature. This means the printer is smart. It will not bother to run to the right margin of the paper on every line if the line is not that long. It simply prints up to the last character then returns home and issues a "New Line" command. Our LPM figures are quoted for full lines printed at the normal density. This ability is more properly called "short line seeking." Text comprised of mostly short lines will yield an amazing increase in throughput. A complete implementation of a logic seeking carriage includes a "look ahead" feature which allows the mechanism to eliminate unnecessary motions within a single line. DW IIs "optimizing feature" accomplishes this. Here is how our printers stack up in the LPM department.

LP II — 31 LPM*
LP III — 48 LPM
LP IV — 22 LPM*
LP V — 60 LPM
LP VI — 33 LPM
DW II — 19.5 LPM
Plotter/Printer — 5 LPM*
QP II — 120 LPM**

*approx. 8" lines
**16 or 32 Characters per Inch

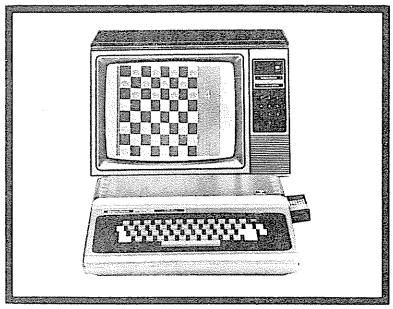
Notes that float to the top of My Desk:

There is going to be a shower of new peripheral products from Radio Shack this spring. Model I owners will be especially happy.

... New price for LP III ribbons (26-1414) beginning this month — $13.95. The LP VI ribbon (26-1418) also has a new, low price — $11.95!

... Speaking of LP III, take a close look at the January Flyer (#333) when it arrives.

Continued on Page 12



Color Computer

Product Line Manager's News

Well, this is the second in a long line (hopefully) of informative articles which you the reader will find useful.

To start with the bad news first:

Personal Finance

In the Personal Finance package for the Color Computer, when saving data to tape or reading data from tape, the instant the screen prints the menu of instructions, (ie. Insert tape, Rewind tape, Press play, etc.) the cassette recorder starts transporting (moving) tape if the recorder is set in

This particular setup is a little different . . . and the manual doesn't say so.

either the record or play modes. If the enter key is not pressed, the data will never be stored or read from tape, even though the tape is being transported. This particular setup is a little different from the way we've done things in the past and the manual doesn't say so. If you get interrupted for any length of time during the load/save procedure before you have pressed "ENTER," the cassette could run past the data on a read or run out of tape on a save. If this happens, just rewind the tape, set the recorder for the proper mode and hit ENTER.

Music

About our Music program: this is one of the more exciting packages that we offer. It lets you enter music (both treble and bass) note by note; then save it, play it, or change it. One small warning though; if some of the notes you have

This seems to be a very obscure problem, but just in case you turn out to be another J. S. Bach . . .

entered are real high on the treble clef, and you change to the key of A#, and then you raise the whole score an octave, when the computer attempts to play the real high notes, the computer will hang up. (Sorry 'bout that). This seems to be a very obscure problem, but just in case you turn out to be another J. S. Bach, save your creations before you start experimenting with them.

Enough said about "bugs" and problems; On to brighter (and more pleasant) subjects.

Extended Color BASIC

First, our extended Color BASIC *will not function without 16K of RAM.* Our catalog said you'd need it for full access to the great new commands that are available in Extended Color BASIC . . . turns out you don't have a choice.

Videotex

For the rest of this issue, I would like to talk to you about Videotex and CompuServe. Videotex is a general term referring to the sending and receiving of text-type data from one computer to another or from a central computer to a series of terminals via the telephone lines and displaying that data on a video.

Videotex is a general term referring to the sending and receiving of text-type data . . . via the telephone lines

CompuServe

CompuServe is a Computer Service organization which can open the door to a wealth of information and bring it into your home or business. Information such as international, national, regional, and local news, weather, sports, or commentary are available at your fingertips in your own home. Also, family service information such as food recipes, nutrition, personal health, home decorating, building, travel, and money management are also available.

Other Services

Within the CompuServe network are also available MicroQuote, supplying information on trading statistics and descriptive information updated daily on 32,000 stocks, bonds, and options; Electronic Mail, which enables you to send and receive messages to other CompuServe members or groups of members across the U.S., or use the "CB"-like simulation to "ratchet-jaw" with other information enthusiasts. Of course, this is just the "tip of the iceberg" in regard to the options available through CompuServe.

Radio Shack Software

(Now the sales pitch. . .)

Radio Shack is offering software packages for each of the computers (except the Pocket Computer).

your own personal ID number and secret password and one free (that's FREE) hour on the CompuServe network

With each software package comes your own personal ID number and secret password and one free (that's FREE) hour on the CompuServe network. After your free hour is up the rates are a very reasonable, $5.00 per hour or roughly 8 cents a minute that you are "on line." (If you must access CompuServe through a supplemental network, there is a small additional hourly charge.)

Required Equipment

All that is required is a computer, a modem to hook up to the telephone line and the software. Or, if you don't have a computer at home or if (heaven forbid) you don't want a computer at home, we offer you a Videotex Terminal which requires only an unoccupied TV (we can fix you up there, too), and a modular telephone jack. The Terminal already contains the software and a direct-connect modem, ready to go; for just $399.00. (Yes, it comes with the ID#, password, and that FREE hour). If you already have a terminal and an operating, compatible software package, we offer a "Dumb Terminal" package which gives you the CompuServe user guide, the ID#, password, and (again) the FREE hour.

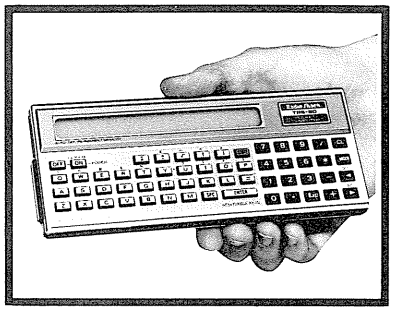
Software Prices

All the software packages sell for just $29.95 except for the "Dumb Terminal" which is only $19.95. We are also going to offer the CompuServe communications software for the Apple II™ and other Personal Computers.

The stock numbers for the packages are as follows:

26-2220 Videotex Software for Model I/III $29.95
26-2221 Videotex Software for Model II $29.95
26-2222 Videotex Software for the Color Computer (cassette) $29.95
26-2223 Videotex Software for the Apple II™ $29.95
26-2224 Videotex Dumb Terminal package $19.95
26-5000 TRS-80 Videotex Terminal—complete except for the monitor (your TV or ours) and the telephone line $399.00

Talk to you next month. . .



Pocket Computer

Product Line Manager's News

Well, here it is January 1981 and the beginning of a new year . . . I trust that you all had an enjoyable holiday and are looking forward to the coming year as much as I am.

Reservable Keys

This month rather than begin a review of our pre-programmed software packages, we will explore the use of the reservable keys and how to use the reserve memory in writing your programs.

Referring to page 80 of your owners manual, you will find a short description of the reserve memory and on page 84 a description of how the 48 steps of this memory are actually allocated as you enter your reserve programs. These 48 steps (6 bytes) of memory are over and above the 1424 steps of memory indicated by the MEM command when there is no program stored in the program/data memory.

Easy Cassette

One of the ways I use the REServe memory is to store the cassette commands so that when I am loading, verifying and saving programs and data (which I do a lot of), I don't have to repeatedly type in these commands. The way I put them in is as follows:

First, make sure you are in the REServe programming mode.

1) SHFT L (for Load) and then type CLOAD" and press ENTER. You will notice that the computer inserted a space between the D and the " mark, this is just for legibility.

2) In the same manner, type SHFT V and then CLOAD?" and then ENTER.

3) Now type SHFT S and then CSAVE" and then ENTER.

Other Uses

At this point you might also want to add a few BASIC statements to the REServe memory, which you frequently use in programming. I have assigned PRINT to the SHFT A key and PAUSE to the SHFT Z key, picking these two keys strictly for their location on the keyboard. You might also want to add some of the Math functions if you are doing a lot of scientific programming. Anyway, the computer will let you know when you have reached the limit of the 48 step memory by refusing to accept any more characters when you press the ENTER key. Note that on page 84, neither the : following the letter of the REServe memory or any spaces in the display will take up room in the REServe memory . . . you will probably notice that you can't even input spaces unless they are enclosed in quotes as in a PRINT statement.

Save it on tape

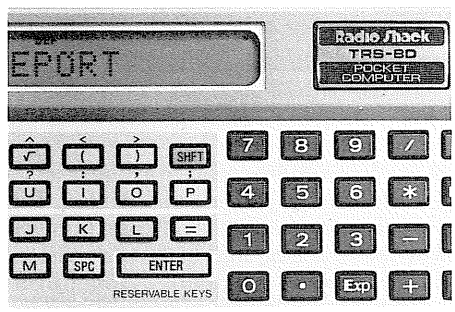
At this point I'll assume that you've filled up the REServe memory with all the special information you want to use so let's store it out to a cassette so you won't have to go through this again if for some reason you have to do an "ALL RESET" or if you change batteries. With the computer still in the REServe mode, do a SHFT S and type in a program name such as RES1 and an ending quote mark. Make sure you have a good data tape in your cassette recorder set up past the leader and in the RECORD mode, now press ENTER and wait for the prompt to return. This will only take a few seconds. Now rewind the tape and put the recorder in the PLAY mode, press SHFT V and type the program name you used earlier, a closing quote and press ENTER. The computer will now VERIFY that what was written on tape is exactly the same as what is in memory and you can be sure you have a 100% good copy.

Neat Trick!

A little trick that I use, since I verify everything that I load into the computer is to CSAVE the program out to the cassette twice in succession with a short gap (3 or 4 counts of the tape counter) between programs. That way when I CLOAD the first copy I can immediately CLOAD? (Verify) the second copy without having to rewind the tape. This is especially handy if you store more than one program on each side of a cassette and the gaps of silence in between the programs make it easier to find a program especially if you have forgotten to write down the tape counter number.

Cassette Functions

You may be wondering at this point if the Cassette Commands function differently in the REServe mode than they do in the other modes. The answer is that they function the same in REServe mode as in DEFine, RUN or PROgram modes but what is recorded is different. You will find that you can CLOAD a program in the DEFine mode that you CSAVEd in the REServe mode and vice-versa. However, what is loaded in will be "garbage" to the computer and it has no way of knowing what mode you saved the program in, as the file marker on tape to indicate a program versus data, is the same for all modes.



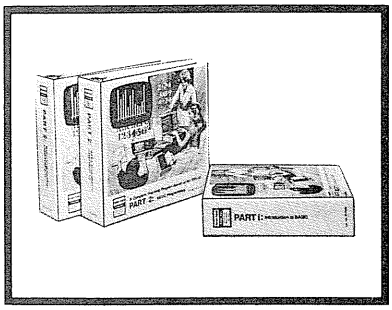
DEF Mode

Our discussion this month has centered on using the RESERVABLE KEYS in the REServe memory mode. There is however another totally separate use for these RESERVABLE KEYS and that is in the DEFine mode. Referring to page 42 of your manual, you will find a short description of this use of these keys. Using these same keys in this mode has no effect on

There is however another totally separate use for these RESERVABLE KEYS

the programs which you entered into the computer in the REServe programming mode. Looking at the illustrations on page 43, you can see that this is a good way to permit easy and direct execution of subprograms within one large multi-purpose program. Just as an exercise, you might consider how you could use this feature in conjunction with the AREAD instruction (see page 69) to help you add more power to the programs you write.

By-the-way, we make extensive use of this feature in our pre-programmed series of tapes for the Pocket Computer. Until February then . . . more "Pocket" power to you.



Education

Educational Product's News

This month's Education page is by Dennis Tanner. Dennis has been a programmer for Radio Shack's Educational Products Development Department since June, 1980. He has degrees in Elementary Education and Reading Instruction from the University of Kansas. Dennis had six years' experience as a public school teacher before coming to Radio Shack.

BASIC Programming Considerations: Writing programs for both the Model I and Model III:

For BASIC programmers, there are some differences in a TRS-80 Level II Model I and a TRS-80 Model III with Model III BASIC. For this discussion we will only consider Model I keyboards which have *not* been modified for lower-case, and Model IIIs with Model III BASIC.

1) Less RAM Available

The Model III has 258 fewer bytes of RAM available to the BASIC programmer, making the maximum 16K memory size 15314 rather than 15572, as it is on the Model I.

2) All Caps or Upper/Lower Case?

The Model III has capital and lower-case letters available at all times. The user can switch back and forth between ALL CAPITALS (shifted or not) and CAPS/LOWER CASE (lower case unshifted, capitals shifted) by pressing SHIFT Ø. The Model I uses capital letters all the time. Shifted letters on the Model I produce ASCII codes of the lower-case letters, but the letters on the screen are still capitals.

Model I

On the Model I this presents no problems for the programmer because the unshifted keys always produce ASCII codes of capital letters and the shifted keys always produce ASCII codes of lower-case letters.

Model III

But on the Model III, this varies according to whether the keyboard is in CAPS/L-C or ALL CAPS. When the keyboard is in ALL CAPS, the letters and ASCII codes returned are capitals, whether or not the shift key is pressed. When the keyboard is in CAPS/L-C, the unshifted keys return lower case letters and ASCII codes, and the shifted keys return capital letters and ASCII codes.

Programmer has Control

Fortunately, the programmer of the Model III can ascertain and control whether the keyboard is ALL CAPS or CAPS/L-C using BASIC statements. Memory location 16409 is always zero when the keyboard is in CAPS/L-C. When the keyboard is in ALL CAPS, that location is never zero. PEEK commands can ascertain the state of the keyboard, and POKE commands can change it.

Which machine?

The procedure to make BASIC programs usable on both the Model I and the Model III varies according to the types of codes the program uses. In all cases, the programmer can use another memory location, 293 (0125H), to determine whether the computer running the program is a Model I or a Model III. Location 293 always contains the value 73 (49H) in a Model III, and it never contains the value 73 in a Model I.

String Evaluation

If a programmer uses INKEY$ or INPUT statements that receive letter codes that are evaluated as strings, the program should contain language to lock the Model III keyboard in ALL CAPS. (This is because the Model I computer will always be ALL CAPS, so the values received will be ALL CAPS in either case.) Here is a sample program that would perform that operation:

```
10 IF PEEK (293)=73 THEN
   POKE16409,1
20 INPUT G$
30 IF G$="T" THEN PRINT
   "TRY AGAIN": GOTO 10
   ELSE PRINTG$:GOTO 10
```

This program should run equally well on both computers, since line 10 changes the computer to the ALL CAPS mode only when it finds a Model III computer. Note that the program loops through line 10 each time, in case the user has pressed SHIFT Ø between times.

ASCII Evaluation

If a programmer uses INKEY$ or INPUT statements that receive letter codes that are to be evaluated by their ASCII codes, a different procedure must be used. Some programs for the Model I allow shifted keys to be used as special codes. Here is an example of a Model I program:

```
10 INPUT G$
20 IF ASC (G$)=116 THEN
   PRINT "THAT'S ALL":
   END ELSE PRINT G$:
   GOTO 10
```

This program checks to determine if G$ is a SHIFT T by comparing the ASCII code of G$ to 116, the code for SHIFT T.

Conversion Considerations

In converting a program like this to run on the Model III, the programmer must remember that the shifted and unshifted keys in the ALL CAPS mode return the same values, so it may not be feasible to use a shifted key as the special code. In the CAPS/L-C mode, however, the unshifted keys return ASCII codes for lower-case letters and the shifted keys return ASCII codes for capital letters. So the program can check to determine if the computer's a Model III. If it is, the program can place the computer in the CAPS/L-C mode, and use the shifted (capital) codes for the special codes.

The above program could be converted to one that will run on either model by using the following programming language:

```
 5 IF PEEK(293)=73 THEN
   F=32 ELSE F=0
 7 IF F=32 THEN POKE
   16409,0
10 INPUT G$
20 IF ASC(G$)=116-F THEN
   PRINT "THAT'S ALL":
   END ELSE PRINT G$:
   GOTO 7
```

In this program, the variable F has the value 32 when run on the Model III and the value 0 when run on the Model I, as assigned in line 5. In line 7, the program sets the keyboard to CAPS/L-C if the computer is a Model III. Line 20 checks the ASCII value of G$, using the code for the lower case on the Model I (116-0 or 116, the code for lower-case t) and the code for the capitals (116-32 or 84, the code for capital T) on the Model III.

Note that the statement to put the keyboard in CAPS/L-C (Line 7) is executed each time the loop is run, in case the user has pressed SHIFT Ø between times.

3) Arrow Codes

The codes for the arrows are slightly different on the Model III. On both models, the unshifted arrows return ASCII codes as follows:

Continued on Page 12

Model I/III

(From Page 7)

Cassette I/O

The Level I Model III loads all of our existing Level I cassettes at 250 baud.

Cassette I/O speed for Model III BASIC is selectable, at power on, to either 500 or 1500 baud with the default being 1500. The 500-baud rate lets you load most existing Model I Level II tapes. You can also change the speed with a POKE from BASIC or the keyboard. You can

It's a new analog cassette I/O that's more reliable and certainly faster.

load a 500-baud Level II tape, and re-save it at 1500! It's a new analog cassette I/O that's more reliable and certainly faster. I hope everyone has the October Newsletter article on CLOAD? and the terrific TRS-80 BASIC Command Summary Table, as there is a lot of information in that Newsletter to acquaint you with Model I/III BASIC Language differences.

Printing Features

As far as printing goes we include the Radio Shack parallel printer interface in all Model IIIs (even Level I). This is an expensive extra with some popular micros as is the monitor, the keypad, lower case, etc. One of the printer control features of the Model III BASIC ROM is the ability to preset the maximum line length. Then if a line exceeds this length during printing the Model III will automatically insert an end of line or carriage return so that the rest of the line will be output on a new print line. This helps if your paper is narrower than the printing width of your printer or if your

. . . we include the Radio Shack parallel printer interface in all Model IIIs (even Level I).

printer doesn't handle overflows well (by losing data or acting abnormally). If you have programmed your own line printer operation with POKEs, be aware that the Model I was memory mapped to location 14312. Printer I/O for Model III is through port 251. Calls to the ROM LP driver are still the same however and, as we have said before, although device I/O may change, if you use Radio Shack documented ROM routines you will be "O.K.".

. . . if you use Radio Shack documented ROM routines you will be "O.K.".

Serial Communication

If you would like to work with serial communications to access a network like CompuServe, utilize a serial printer or communicate with another computer as a terminal, the Model III allows you to easily develop driver programs by offering RAM addresses for setting baud rates, word lengths and other characteristics that match the device you are communicating with (Look Ma, no dip switches!). ROM subroutines then allow control of character send and receive. Communications opens the door to some exciting things available to Model I/III owners thru CompuServe like Electronic Mail, C.B. Communication Simulation, News and Special Interest Information. RS-232 initialization on the Model III is not required with our Videotex software package but if you attempt to access another service or network, you will appreciate the new RS-232 control firmware.

I/O Routing

Let's finish by talking about one more I/O capability. It's called I/O routing which means that a device — keyboard, video, printer or serial interface, can be redirected to any other of these devices under program control. For example I/O routing could be used to route video output to a printer. Another example might be directing all printer output to the RS-232 channel. I/O routing will save you time in developing applications and continue to be one of the many examples you find in your use of the Model III that point to its added versatility.

Next month I will continue pointing out where the Model III's capabilities differ from Model I's.

See you then. . .

Peripherals

(From Page 8)

. . . Line Printer V makes its debut this month. It is an LP III look-alike, but with a faster speed (160 cps) and lower price! ($1860)

. . . LPC (700-2007) is the final name for what has been the "LP III Driver" and "LP/C." LPC is available free through your Radio Shack Store. This utility is used with Model I programs expecting a Centronics code response protocol (CCRP) printer (whew!) and printers that are not CCRP. See the November Newsletter for more information on LPC.

. . . Don't forget that the New LP IIs are 80/132 column printers. This makes them our lowest priced business printer.

. . . If you need an extra Cassette Interface Cable for your Model III or Color Computer, they are available from National Parts as stock no. AW-2577. The suggested retail price is $4.60. . . . for QUME printer users, a tractor-feed mechanism is available as National Parts #AXX-5022 with a suggested retail price of $416.00.

That's all for this month, 'til next month, Happy Computing.

Education

(From Page 11)

◀ returns 8.
▶ returns 9.
▼ returns 10.
▲ returns 91.

When the shift key is used, both models produce these codes:

◀ returns 24.
▶ returns 25.
▲ returns 27.

The shift ▼ may return either a code 26, or no code. This is because the shift ▼ is used to produce control codes in some machines. This is true for *both* Model I and Model III.

Printing the arrow characters on the screen requires different codes. On a Model I, the "PRINT CHR$( )" command can be used with these codes to print the arrows:

PRINT CHR$(91) produces ▲.
PRINT CHR$(92) produces ▼.
PRINT CHR$(93) produces ◀.
PRINT CHR$(94) produces ▶.

On a model III, however, these arrow characters cannot be printed on the screen. The commands above return [, \,], and ^ respectively.

Suitable substitutes for these arrows may be produced, however. The following code will produce arrows on both the Model I and the Model III.

```
10 IF PEEK(293)=73 THEN
   F=1 ELSE F=0
20 PRINT CHR$(91+3*F);
   "UP"
30 PRINT CHR$(92-6*F);
   "DOWN"
40 PRINT CHR$(93-33*F);
   "LEFT"
50 PRINT CHR$(94-32*F);
   "RIGHT"
```

In line 10, the variable F is set as a flag. F=0 on the Model I, and F=1 on the Model III.

Line 20 produces CHR$(91) or "▲" on the Model I. It produces CHR$(94) or "^" on the Model III.

Line 30 produces CHR$(92) or "▼" on the Model I. It produces CHR$(86) or "V" on the Model III.

Line 40 produces CHR$(93) or "◀" on the Model I. It produces CHR$(60) or "<" on the Model III.

Line 50 produces CHR$(94) or "▶" on the Model I. It produces CHR$(62) or ">" on the Model III.

We hope that this discussion will help those of you who are producing programs which must run on either a Model I or a Model III. The conversion techniques discussed are not difficult, but they must be applied consistently if a program is to run smoothly on either machine.

Bugs, Errors and Fixes

The following information is provided for your convenience. If you have one of these programs, you may wish to make the corrections yourself. If you make the corrections yourself, make them carefully to a *BACKUP COPY* of your original, check all spellings, syntax, punctuation, etc. If a program line number is followed immediately by ellipsis (. . .) there are no changes to the beginning of the line. If the ellipsis appears at the end of a correction it indicates that the rest of the program line remains unchanged. We will normally indicate added or changed material in a line by underlining the change.

If you do not wish to make the corrections, contact your local Radio Shack store, dealer, CMR or Computer Center. One of these will be able to assist you in making these changes.

If you wish you may also call Computer Services for assistance.

26-1555 Model I/III Accounts Receivable

There is an addendum going out with the Version 3.0 Accounts Receivable programs (700-2002). The addendum gives instructions on how to convert Model I data files to the new Model III format. In this addendum, you are instructed to add a line 765. This is an error, and should have read that you add line 165. If you add this as line 765, the data will not convert.

26-1556 Model I Payroll

A new W-2 Alignment Mask, and updated tax tables for Arkansas, California, Colorado, Hawaii, Idaho, Illinois, Indiana, Iowa, Louisiana, Maine, Maryland, Michigan, Minnesota, Montana, Nebraska, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Utah, Vermont, West Virginia and Wisconsin are available through your local Radio Shack store or dealer as stock number 700-3008 for a suggested retail price of $19.95.

In the Earned Income Credit version of Model I Payroll Version 2.0, you may get an "FC Error" when printing the check register. To correct this problem, add a line 1026 to the "PR4RGST" program:

At DOS type: BASIC (ENTER)

Follow the standard BASIC power-up sequence.

At READY type:
LOAD"PR4RGST"(ENTER)

At READY type:

```
1026 IF I7=0 THEN E1#=0:
     GOTO 1029
```

Press (ENTER)

At READY type: SAVE"PR4RGST"(ENTER)

Please make this change to each of your Payroll program copies.

26-1558 Business Mailing List

There have been several reports that listings and labels printed in ZIP CODE order would be printed out of sequence after updating any zip code. The changes listed below should keep this problem from occurring. To correct a diskette on which this problem has already occurred, you will need to make the program changes, then delete and re-enter any items which were printed out of sequence. Make these changes to the "MLS" program:

```
 830 PA=N1
     :GOSUB2980:PRINT@64,
     "SELECT LINE TO BE
     UPDATED--> ";
1090 GOSUB2050:P7=640:
     IFCF<>0THEN640
     ELSE1130
1130 GOSUB1870:
     IFPA<>N1THEN530 ELSE
     GOSUB2190: GOTO640
```

26-1565 Microfiles

Microfiles contains the following problem:

If a file contains more than 256 records and you delete any record, you cannot add records to that file again. The one exception to this problem is if the record deleted is the last record in the file.

On a two disk system follow this procedure:

1) Place a system (TRSDOS) diskette which contains BASIC in drive 0. Note: The Microfiles diskette does not have BASIC.

2) Load BASIC and enter this program:

```
10 INPUT"READY NEXT
   DISK"; A$
20 OPEN"R",1,"FILES/VIR"
30 FIELD#1,48 AS X1$, 1
   AS F1$, 148 AS X2$, 1
   AS F2$
40 GET 1,15:LSET F1$=
   CHR$(4): PUT 1,15
50 GET 1,3:LSET F2$=
   "6":PUT 1,3
60 CLOSE:GOTO 10
```

3) After you have verified the program, enter SAVE"MICRO/FIX" to save a copy of this fix program.

4) RUN the program with your Microfiles diskette in drive 1.

5) You can make this modification to all copies of Microfiles by swapping to the next diskette at the point where "READY NEXT DISK" is displayed. To stop the program press (BREAK) when the "READY NEXT DISK" message is displayed.

For a one disk system, follow steps 1-3 above. Swap diskettes so that the Microfiles program diskette is in drive 0. Type RUN. Continue with step 5 above until all copies of Microfiles have been corrected.

In addition to the above problem, there is also a problem with the Microfiles index for versions 2.0 and earlier. An error exists in the logic of the "FIND" command. Even though the "INDEX BY" command puts records in the proper sequence, they are sometimes not found by "FIND." The error is most likely to occur when there are many records with the same value in the field being used for an index, and a few of these records contain the value but with one or more trailing spaces. Due to an error in logic, this will sometimes cause the binary search to "take a wrong turn." When this occurs, a "DISPLAY NEXT" will usually show the record(s) being sought.

The solution is to eliminate the trailing spaces. This will not only make FIND work correctly, but will save space in your data file. To check a field for trailing spaces, do the following (in Microfiles):

BUILD FORMAT TEST (ENTER)
O (do NOT push enter)
DOWN-ARROW, Y, SHIFT-RIGHT-ARROW (5 times), then type the name of the field to be checked, (ENTER), SHIFT-LEFT-ARROW twice, L, *, (ENTER), Y, (ENTER)

Then type: D ALL (ENTER)

This will cause the field to be displayed for all records, each one on a new line. If it is correct, there will be one space before the asterisk. If there are trailing spaces, they will show up as additional spaces before the asterisk. Use the space bar to slow-up the listing if necessary. When you see extra spaces, push the ENTER key to stop the listing. Then type: D PREV (ENTER) if necessary to go back to the one with the error. When the last record displayed on the screen is the one with the error, type: C, the name of the field, (ENTER). Now use the right-arrow to move the cursor over the first space that follows your data. Then push SHIFT-CLEAR. This will remove the trailing spaces. The cursor will jump back to the beginning of your data if you did it correctly. Finally, push (ENTER) to store the corrected record.

Type: D REST (ENTER) to review the rest of your records.

Note: even if you have not had this problem, it is worth knowing about and

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using SHIFT-CLEAR. Typed spaces, even at the end of a field are considered to be data and are stored in the record.

26-1604 Model I Versafile

In Model I Versafile, there is a subscript out of range error. To keep this error from occurring, make the following changes in the "VERSA" program:

```
110 CLEAR 13000
120 DEFSTRA,B,C,D,E,F,K:
DEF INT L,X,Y,Z: DIM
E(200), Y(200), A(25),
K(25)
```

26-1705 Model I Advanced Stat. Anal.

In some instances, frequency distributions have not correctly placed items in the correct categories. Change line 10 in the "ASAFD" program to read:

```
10 CLS:DEFINTI-N:
   DEFSTRZ:N=0:J=0:
   MT=1:A$="######,###":
   DIMA(11)
```

Change line 10 in the "HISTOGRAM" program to read:

```
10 CLS:DEFINT I-N:
   DEFSTR Z:N=0:J=0:
   MT=1:A$="###,#"
```

Make the following additional changes to the "HISTOGRAM" program to make the range between different frequencies equal:

```
1480 FI=INT(FI+KK/G*10)
     /10:I=I+1:LZ(I)=INT
     (FI)+LX:H=LZ(I):
     FI=LZ(I):NEXTJ
1485 LZ(1)=0:FZ(1)=0:
     I=1:T=LZ(7)/N:H=0:
     FORJ=888TO120STEP
     -192:PRINT@J,"";
     :PRINTUSINGA$; H;
1530 FORLY=40TO40-LA(I)
     /LZ(7)*37STEP-1:
     SET(J,LY):NEXTLY:
     NEXTJ
```

Some explanation concerning interpretation of the histogram is in order:

1) Frequencies will always be whole numbers. That is, you cannot enter half of one data item into the program.

2) When reading the histogram, keep in mind that the purpose is to get an overall picture of the frequencies of the items in the different intervals, and to compare them.

3) Since the precision of the histogram is limited by the size and utilization techniques of the video display, it is a good idea to use results from the "Frequency Distribution" program together with the histogram for determining the exact relationships.

26-4502 Model II Inventory Management

Inventory Management, when listing unposted sales transactions in version 1.0, will list 16 items and drop the 17th. To correct this, change line 2540 (Version 1.0 ONLY!) in the "SALES/BAS" program to read:

```
2540 P=P+1:NEXT:IFN+15<
     NSTHENN=N+16 ELSEN=1
```

It is possible that the items carried by Inventory Management will be wrong. This can happen for any of several reasons:

1) Abnormal exit from the program.

2) Index file damaged.

3) When recover is run on the 1.1 version, the system comes up with the wrong number of inventory items if there were duplicate stock numbers. The following procedure will correct this problem for versions 1.0 and 1.1:

At TRSDOS READY type in IMS(ENTER)

At the main menu:

Version 1.0 Press(BREAK)

Version 1.1 Press (CTRL) (P) then (BREAK)

When the program BREAKs (both versions), type:

NI = n (ENTER) (where n is actual number of items)

CONT (ENTER)

Now press the (R) key. This causes the program to go into the Review/Edit mode. Press the (F1) key to return to the main menu. Check the total number of inventory items you assigned.

26-4503 Model II Payroll

In the Prepare Checks section of Model II Payroll there is a problem if you enter an employee number which is greater than the last employee number assigned. If this happens the number entered will be displayed on the video as the number of the next employee displayed on the screen. Change line 510 of the "INPUT" program to read:

```
510 IFCF<>5 THEN IF CF<>0
    THEN 500 ELSE
    C=VAL(IN$)-E0: IF C<1
    OR C>LOF(3) THEN 500
    ELSE N=C
```

During preparation of checks, if a terminated employee is chosen, the system will display the message "TERMINATED <DATE>." The date displayed is the anniversary date, not the termination date. To correct this, change line 570 of the "INPUT" program to read as follows:

```
570 PRINT@(3,0),"";:
    IFMID$(NM$,131,8) >
    "00000000"THEN PRINTR$
    " TERMINATED ";
    MID$(NM$,131,8);" "
    N$ELSEPRINT""
```

When preparing checks the program does not always round numbers properly. A rounding error is an error of + or − one cent, not several hundred dollars. To correct this problem, change line 820 of the "INPUT" program to read:

```
820 E#(I)=INT(H#(I)*
    R#(I)*100#+.5#) /100 #
    :GOTO840
```

Model II Payroll only allows state tax ID numbers to be 13 characters. It has been reported that the state of Missouri requires 17 characters. To allow 17 characters, change line 1090 in the "CHNGCO" program to read:

```
1090 , , , FL=30 ELSE IF
     I=5 THEN FL=17 ELSE
     FL=13
```

Change the following lines in the "CHNGCO" program to allow the FUI rate to be printed with three decimal places on the Company Definitions Report. This change should be made in addition to the changes which allowed entry of the FUI rate to three decimal places (see the October News for those changes):

```
2200 , , , :F9$=
     "###,###,##-"
     :F7$=LEFT$(F9$,10
     )+"#-"
     :F8$="####":LPRINT
2240 , , , :IFJ>0
     ANDI=5ANDK=1THEN
     LPRINTTAB(K*13+12);
     USINGF7$;FT#(J);
     ELSEIFJ>0THEN
     LPRINTTAB(K*13+12);
     USINGF9$; FT#(J);
```

Computer Services has copies of the 1980 W-2 Program, and a corrected page 15 for the Payroll manual. Also available are new tax tables. If you do not know if your state's tax tables have changed, contact your local tax authority. If you know that your state tax tables have changed, contact Computer Services for the latest version. Revised Tax Tables are currently available for Arkansas, California, Colorado, District of Columbia, Idaho, Illinois, Indiana, Iowa, Minnesota, Oregon and South Carolina.

In the Payroll program, if you are adding the address of an employee and the address is entered like "229 E 65 ST." an OVerflow error may occur. If there is no period after the E, the computer reads the data as an arithmetic value in exponential notation (229E + 65)! This error

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will not occur with N, S or W. To prevent this error from occurring, change lines 1131 and 1132 of the "ADD" program to read:

```
1131 IFCF>0ORIN$<
     CHR$(3)THENRETURN
     ELSEIFI=4THEN
     GOSUB2300: IFIV=0
     THEN1130
1132 IFI=8THENIF
     VAL(IN$)>7THEN1130
```

The federal government publishes the "Employer's Circular E Tax Guide." This tax guide is a set of tables showing what an employee is to pay per pay period. This guide has tables for weekly, biweekly, semimonthly, monthly, quarterly, semiannual and annual pay periods.

If there is a discrepency between the amount the table indicates an employee should pay in taxes and the amount the Model II indicates, be certain that a) you are reading the correct table, and b) that you have set-up the employee personal information correctly. Also, the tables deal with salary RANGES. The program computes the tax based on exact earnings. Discrepencies of a few dollars are usually due to this difference in computation.

26-4505 Model II Accounts Payable

Some customers have inquired about an option which would allow posting of invoices without them having to return to the Main Menu. The purpose of this option is to save time by not having to load those large programs. If these changes are made, you should be aware that a COMPLETE posting of ALL invoices must be done since you will be unable to select invoices as you can in the normal posting method. Make the following changes to the "APINVCE/BAS" program:

Change lines 502, 850, 860 and 1024 as follows:

```
502  PRINT@(23,20),EL$
     "> ENTER A SELECTION
     : ";:FL=1:GOSUB10:
     IFCF=1 ORCF=2 THEN
     850ELSEIFCF<>0
     THEN502
850  CLOSE:
     OPEN"O",1,VP$:, , ,
860  , , , :NEXT:CLOSE1
1024 , , , ;TAB(40);
     FNRV$("N");"EXT"
     ;TAB(55);FNRV$
     ("F2")" POST
     INVOICES"
```

Note that in line 850 we removed the first part of the line, and that in 860 and 1024 we changed only the end of the line.

To complete these changes we need to add a new line:

```
870 IFCF=2THEN
    RUN"APPOST/BAS"
    ELSERUN"APS/BAS"
```

Save these changes by using:

```
SAVE"APINVCE/BAS"
```

With these changes, pressing the "F2" key at the "INVOICE MAINTENANCE" menu will take you directly to "INVOICE POSTING." Remember that if you do this, you will have to use the Complete option in posting.

In Model II Accounts Payable, a problem is occurring with indexing of vendors. A zero is placed in the array that holds the record numbers for the vendors. This causes an error code 61 to occur. To stop this from happening, make the following changes to the "APS/BAS" program:

Change lines 1722 and 1726 to read:

```
1722 IFW1>P1THENS1=-1
     ELSEP1=P1-1
1726 IFW2>P2THENS2=-1
     ELSEP2=P2-1
```

If you have had this error, you must re-index the vendor file. The following procedure will reconstruct the index. NOTE: do the following to a BACKUP copy of your Accounts Payable working diskette. Do NOT perform the procedure on your current work diskettes until you are sure the recovery procedure has corrected the problem.

PROCEDURE FOR RE-INDEXING APS (26-4505)

1) From TRSDOS READY, type:

BASIC -F:3 (ENTER)

2) Type in the following program:

```
20000 ZN=VN:ZD=VD
20010 VN=1:VT=0:VD=0
20020 FOR W9=0 TO ZN-1
20030 P(W9,0)=0:
      P(W9,1)=0
20040 NEXT W9
20050 FOR ZZ=1 TO ZN-1
20060 GET 2,ZZ
20070 VV=CVI(V0$)
20080 V$(1)=VF$(1)
20090 GOSUB 1700
20100 VT=VT+1:VN=VN+1
20110 NEXT ZZ
20120 IF ZD=0 THEN 1000
20130 CLOSE 1
20140 OPEN"I",1,VP$
20150 FOR W9=1 TO 23
20160 INPUT#1,XX!
20170 NEXT W9
20180 FOR W9=1 TO VN-1
20190 INPUT#1,X1,X2
20200 IF X1>0 THEN 20280
20210 VL=ABS(X1)
20220 FOR W8=0 TO 1
20230 FOR W7=1 TO VN-1
20240 IF P(W7,W8)=VL
      THENP(W7,W8)=
      -VL:W7=VN-1
20250 NEXT W7,W8
20260 VD=VD+1:VT=VT-1
20270 IF VD=ZD
      THEN W9=VN-1
20280 NEXT W9
20290 GOTO 1000
```

3) Save this program using:

```
SAVE"RECOVER/ASC",A(ENTER)
```

4) Type: `LOAD"APS/BAS"` (ENTER)

5) Type: `MERGE"RECOVER/ASC"` (ENTER)

6) Type: `RUN`(ENTER)

7) Enter the password. At the Main Menu, press (BREAK)

8) Type: `GOTO 20000`(ENTER)

The recovery process will be completed and the program will return to the Main Menu. Press "F1" to exit the program.

26-4506 Mailing List

A problem exists in Version 2.0 of the Mailing List program on TRSDOS version 1.2. This does not affect versions prior to 2.0.

The symptoms of the problem are:

1) After running MLSFIX, all items are sorted correctly, however, numerous

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Printer Recall

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short circuit would not rupture the fuse and could cause a fire or electrical shock (whether the cover is open or closed).

If you have a Qume:

1) Pull the plug.
2) If you have an On-site Service contract on the printer, call the number you have for service and request service for the printer. Mention this letter.
3) If you have Carry-in Service, or no service contract you have two options:
   A. If there is a Radio Shack Computer Center in your area (see attached list for Computer Center locations): Call the Computer Center. They will be able to make arrangements which will allow you to bring your printer in and have it fixed while you wait.
   B. If you are not close to a Computer Center, take the printer to your local Radio Shack. They will arrange to have the required modification done as quickly as possible.
4) There will NOT be a charge for this modification.

Radio Shack®
MICROCOMPUTER NEWS
P.O. BOX 2910
FORT WORTH, TX 76101

ADDRESS CHANGE
☐ Remove from List
☐ Change as shown
Please detach address label and mail to address shown above.

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"garbage" records appear at the end of the list.

2) The number of garbage records is equal to the user defined maximum number of records minus the actual number of records.

This problem occurs because file lengths are used to "reset" the number of records. Since the files are now pre-allocated, records may be inserted which were never used.

The solution is to make the following changes to MLSFIX/BAS and then redo the MLSFIX procedure.

Change the following lines to read:

```
1050 N=0:TN=1
1070 PRINT@(15,28),
     "Record # : ";
1090 PRINT@(15,47),
     CHR$(23);R$;RS;N$;
1100 J=TN:GOSUB400:
     GOSUB410
```

Add the following lines:

```
1102 IF ASC(E1$)<32 OR
     ASC(E1$)>128 THEN
     RS=TX:GOTO 1110
1104 GOSUB 650:N=N+1:
     TN=TN+1:EL$=E1$: IW=1
```

Then SAVE the changes using:

```
SAVE"MLSFIX/BAS"
```

Name Finder

Have you ever created a Model I system tape and then forgotten the filename? Or perhaps a friend gave you a copy of her latest, greatest, creation and forgot to give you the file name? Well, Scott Olson of Decatur, Ala. has a solution. This little program will read the filename from a system tape for you. (In case you are not familiar with system tapes, you need a filename in order to load the program.)

```
10 CLS
20 FOR X=32700 TO 32723
30 READ A
40 POKE X,A
50 NEXT
60 PRINT
70 DATA 33, 255, 59, 6
80 DATA 7, 205, 18, 2
90 DATA 205, 150, 2, 205
100 DATA 53, 2, 119, 35
110 DATA 5, 194, 199
120 DATA 127, 205, 248
130 DATA 1, 201
140 POKE 16526, 188
150 POKE 16527, 127
160 U=USR(0)
```

Mr. Olson notes that the PRINT statement in line 60 is important. He also indicates that if you use this to find the file name for a BASIC program, the file name will be in the third screen or character position, after two graphics characters.

Model II Patch

The following patch is needed in the "TERMINAL" Utility for Model II TRSDOS 2.0. When you are using the "G" (Get disk file into RAM) with a variable-length record file, one (1) extra byte is being inserted before each logical record. These patches will correct the problems:

```
PATCH TERMINAL A=3723
  F=FE4628 C=D65620
PATCH TERMINAL A=372A
  F=06004E23AFB9C004C9
  C=474E230DC0E1C3F632
```

COMPUTER SERVICES ADDRESS
AND PHONE NUMBERS
8AM to 7PM Central Time
Computer Services
900 Two Tandy Center
Fort Worth, Texas 76102
1-800-433-1679 (WATS Except Texas)
1-800-772-5914 (WATS Inside Texas)
1-817-390-3583 (Switchboard)

National Computer Camp

This summer youngsters can again sign up for an overnight camp in Moodus, Connecticut, where the main activity will be COMPUTERS. This unique recreational and educational experience is directed by Dr. Michael Zabinski, Professor at Fairfield University. It is the original computer summer overnight camp currently offered in the USA.

The 1981 National Computer Camp will feature two action-packed one-week sessions: first session July 19-24; 2nd session July 26-31. The campers, ages 10-17, will enjoy small group instruction and mini and microcomputers for ample "hands-on." Dr. Zabinski will be assisted by elementary and secondary school teachers.

The camp is for kids of all levels of experience including no experience whatsoever. In addition to computers, the campers will enjoy the superb recreational facilities of the Grand View Lodge including swimming and volley ball.

For further information, contact Michael Zabinski, Ph.D., at (203) 795-9069, or write to Computer Camp, Grand View Lodge, Box 22, Moodus, Connecticut 06469.