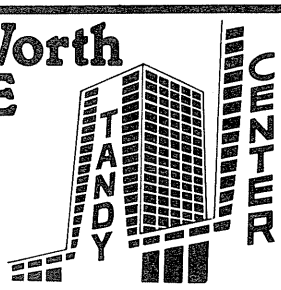
Radio Shack

TRS-80™ Microcomputer NEWS

SEPTEMBER, 1980

THE MICROCOMPUTER NEWSLETTER PUBLISHED FOR TRS-80 OWNERS Volume 2 Issue 7

Fort Worth SCENE



Beginning with the View from the 7th floor in this months issue, and continuing in separate articles for the next three issues, we will try to present you with detailed and informative articles concerning our new products, especially the new computers. We are excited about our new product line, and hope you will be also.

We will also continue to publish "fixes" to known errors in all of our software packages. We have not forgotten that many of you have been kind enough to submit personal programs to us. As space permits, we will be including these in future issues of the Newsletter.

COMPUTER SERVICES ADDRESS AND PHONE NUMBERS

8 AM to 7 PM 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)

More Computer Clubs

In the last few weeks we have received information about the following computer clubs:

80—Users of Houston
New Address
3723 Purdue
Houston, Texas 77005
1-713-664-5823

Chattanooga Computer Club
4429 Paula Lane
Red Bank, TN 37415
1-615-875-4261

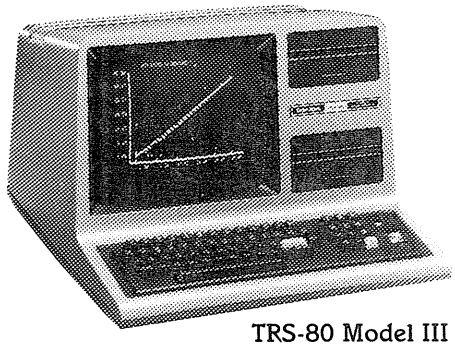
VIEW FROM THE SEVENTH FLOOR

by Jon Shirley

Last month I talked about misconceptions and this month I would like to go after rumors. About 99% of all the hot news published about us is simply not true. I often believe some magazines and user group publications feel that publishing garbage is the only way to keep up readership. There have been rumors for many months about a TRS-90, the Model I being dropped, etc., etc. Next month we will show you our new product line but here is a quick look and you can compare the facts to the rumors.

First of all the Model I is not dropped, it is in the 1981 Radio Shack Annual catalog and the price is unchanged. Also in the catalog, new for Model I disk systems, are Visicalc for $99.95, a COBOL compiler for $199.00 (Expected Availability 11/80), and a BASIC compiler for 149.00 (Expected 12/80).

The Model II is also in the catalog, the price is the same and there are many new software packages including Model II SCRIPSIT at $299 (Expected end of Sept. 80).



TRS-80 Model III

On July 31, in Fort Worth, we had the first public showing of our new computer products. Not one new computer but *THREE*. And NO TRS-90. Here are the facts . . .

New computer number one is the TRS-80 Model III. It looks like a small Model II with the keyboard fixed to the case and room for two mini-disk drives where Model II has its 8 inch drive. The built-in monitor is 12" and high resolution, the keyboard has 65 keys arranged like a Model I. (Continued on Page 8)

Computer Leasing Program soars into 1980's

A & A Financial Corporation, a wholly-owned subsidiary of Tandy Corporation, leases TRS-80 microcomputers and related equipment to customers who desire the advantages of the Radio Shack computers without the expenses of ownership.

There is no restriction on the model or series of Radio Shack computer products that are eligible for the A & A Financial lease program. While lessees must be business or educational institutions, only a $3000 minimum equipment value is required to submit an initial lease request (each subsequent lease with the same customer must have a minimum of $500 equipment value). Continued on Page 5

NEWSLETTER INDEX IN THIS ISSUE . . .

Model I to Model II Upload Change

The Upload kit for Model I to Model II transfers (AXX-2440) is no longer available. Instead, the software and hardware are now available as separate packages.

The software for Uploading is now part number AXX-2009, with a suggested retail price of $20.70. The hardware cable is now part number AXX-1006, with a suggested retail price of $80.00. Both of these items can be ordered from your local Radio Shack Store or Dealer.

Model II Diskette Caution

The TRS-80 Model II uses double-density diskettes. We have recently traced a number of serious problems to the use of lower cost single-density diskettes.

The Model II was designed to use only very high quality double-density diskettes such as our 26-4905s and 26-4906s. Extensive testing has shown that the lower cost single-density diskettes simply do not provide the quality needed to ensure reliable data transfer with the Model II.

We are not trying to say that our diskettes are the only ones that will work. There are other DOUBLE-DENSITY diskettes which work very well in the Model II. However, before you invest a lot of money, make sure that the diskettes you are buying will provide you with reliable data transfer over a period of time. Remember, when you buy Radio Shack accessories and supplies for your TRS-80, you are buying products which have been thoroughly tested and proven to work with our microcomputers.

Radio Shack Limited Warranty Policy

For a period of 90 days from the date of delivery, Radio Shack warrants to the original purchaser that the computer hardware unit shall be free from manufacturing defects. This warranty is only applicable to the original purchaser who purchased the unit from Radio Shack company-owned retail outlets or duly authorized Radio Shack franchisees and dealers. This warranty is voided if the unit is sold or transferred by purchaser to a third party. This warranty shall be void if this unit's case or cabinet is opened, if the unit has been subjected to improper or abnormal use, or if the unit is altered or modified. If a defect occurs during the warranty period, the unit must be returned to a Radio Shack store, franchisee, or dealer for repair, along with the sales ticket or lease agreement.

Purchaser's sole and exclusive remedy in the event of defect is limited to the correction of the defect by adjustment, repair, replacement, or complete refund at Radio Shack's election and sole expense. Radio Shack shall have no obligation to replace or repair expendable items.

Any statements made by Radio Shack and its employees, including but not limited to, statements regarding capacity, suitability for use, or performance of the unit shall NOT be deemed a warranty or representation by Radio Shack for any purpose, nor give rise to any liability or obligation of Radio Shack.

EXCEPT AS SPECIFICALLY PROVIDED IN THIS WARRANTY OR IN THE RADIO SHACK COMPUTER SALES AGREEMENT, THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL RADIO SHACK BE LIABLE FOR LOSS OF PROFITS OR BENEFITS, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER SIMILAR DAMAGES ARISING OUT OF ANY BREACH OF THIS WARRANTY OR OTHERWISE. 7/80

Level II Manual Error (26-2102)

Page 7/3 of the Level II manual, both editions, contains an error in the INT function. In both manuals, INT(1000101.23) should return 1000101. The first edition has 100101, while the second edition has 10000101.

Radio Shack Service Policy

Radio Shack's nationwide network of service facilities provides quick, convenient, and reliable repair services for all of its computer products, in most instances. Warranty service will be performed in accordance with Radio Shack's Limited Warranty. Non-warranty service will be provided at reasonable parts and labor costs.

Because of the sensitivity of computer equipment, and the problems which can result from improper servicing, the following limitations also apply to the services offered by Radio Shack:

1. If any of the warranty seals on any Radio Shack computer products are broken, Radio Shack reserves the right to refuse to service the equipment or to void any remaining warranty on the equipment.

2. If any Radio Shack computer equipment has been modified so that it is not within manufacturer's specifications, including, but not limited to, the installation of any non-Radio Shack parts, components, or replacement boards, then Radio Shack reserves the right to refuse to service the equipment, void any remaining warranty, remove and replace any non-Radio Shack part found in the equipment, and perform whatever modifications are necessary to return the equipment to original factory specifications.

3. The cost for the labor and parts required to return the Radio Shack computer equipment to original manufacturer's specifications will be charged to the customer in addition to the normal repair charge.

Model I Software Tips From Computer Services

Cassette Portfolio (26-1506)

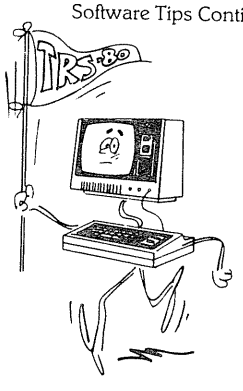
Cassette Portfolio is designed to be a personal record keeping system that will help you keep track of your portfolio, and how you stand in relation to the money you have invested.

One area of the Cassette Portfolio program which has been questioned by a few customers, is the area of computing returns. Cassette Portfolio computes returns on your ACTUAL PURCHASE PRICE (Effective Yield), not current market price (Current Yield).

If you want or need Cassette Portfolio to compute returns based on current yield, the following change may be made to the summary program (TSUMM):

In line 129, change B#(J) to H#

Software Tips Continued on Page 3



General Ledger (26-1552)

From Page 2

There have been problems reported in which General Ledger "hangs-up" while posting. The problem has been found to deal with the GLJOUR file. The following changes will help correct this problem:

At DOS READY, type:

BASIC

answer the questions, then type:

LOAD"GLTXPOST"

EDIT line 302 to read:

302 PUT2,ME:ME = ME + 5:GOTO302

EDIT line 304 to read:

304 IFERR<>122THENRESUME: ELSE ME = (ME*6) – 6:RESUME 305

SAVE"GLTXPOST"

NOTE: THESE LINES DO NOT EXIST IN SOME VERSIONS, AND SHOULD NOT BE ADDED.

In addition to this change, there are three additional things to look for if you have been getting this problem:

1) There may be additional programs or files on the diskette. These files or programs would have been put on the diskette by the user who has either modified the program, or, seeing "empty" disk space has added programs to the diskette. The following programs are the only ones which should appear when you do a directory of the master diskette:

INCOME	GLINIT	GL
GLBALSHT	GLMAINT	CTRL
TXREPORT	GLTXPOST	CATMAINT

2) The system program BASICR may still be on the diskette. To determine if BASICR is on the diskette, type:

DIR (S,I)

If BASICR appears in the directory, KILL it using the following command sequence (a word of caution—do NOT KILL BASIC, only BASICR):

KILL BASICR/CMD.BASIC

3) The only way to get the maximum capacity of 240 posting entries per session is to have at least nine free granules on the master diskette if posting is to occur without problems. We suggest that at least ten granules be available to give a safety margin. If you do not have at least nine granules, three granules each can be gained by KILLing FORMAT and BACKUP. We suggest KILLing FORMAT first. Only if there is still not enough free diskette space should you KILL BACKUP. Make sure you have file copies of these programs before KILLing them. Use the following command sequences to KILL FORMAT and BACKUP:

KILL FORMAT/CMD.FORMAT
KILL BACKUP/CMD.BACKUP

If you have files which must be placed on the master diskette, such as the LPIII driver, the following program change will allow you to do this. For each granule of diskette space you use (reducing the total available space to less than nine grans), the number of transactions which you are allowed will be reduced by 30. In no case should you reduce the amount of free diskette space to less than four free granules.

Accounts Payable (26-1554)

Problem:

Some customers have "crashed" (destroyed) their index file.

Solution:

The following sequence will reconstruct the index for Version 1.2 or later (Note: if the index has been "zeroed out," this will not work):

At TRSDOS READY type:

BASIC

answer the questions and type:

LOAD"APS"

add line 257:

257 NA = 1:GOTO 620

RUN

enter a new vendor, and sort

This should reconstruct your index file.

Problem:

The Accounts Payable program will allow you to enter an invalid first check number. Your check numbers should be in the range from 0001 to 9999. An error will occur if you enter a check number in the range 32767 to 99999.

Solution:

To prevent this problem from occurring, make the following change to the CHECKS program:

Change line 555 from:

555 GOSUB 590: FL = –5:...

To:

555 GOSUB 590: FL = –4:...

Accounts Receivable (26-1555)

Problem:

After "End of Period Processing" you can increase the number of accounts if you desire. You cannot decrease the account capacity.

Solution:

If you need to decrease the number of accounts, use the following procedure:

From TRSDOS READY type and enter:

BASIC

answer the questions and type:

LOAD"SETUP"

change line 880 to read:

880 PD = 2:PC = 500:PT = 2500
:IFQ$ = "M" THEN ON ERROR GOTO895: KILL PT$:
PT$ = LEFT$(PT$,LEN(PT$) – 1) + "2":
OPEN"R",3,PT$: CLOSE 3:ON ERROR GOTO 600

add line 895:

895 IF ERR/2 + 1 = 54 THEN RESUME NEXT ELSE ON ERROR GOTO0

SAVE"SETUP"

You should now be able to reduce the number of accounts as well as increase the number.

Disk Payroll (26-1556)

Problem (Previously noted in Jan/Feb Newsletter):

You may not be able to change the number of weeks worked, or Workman's Compensation in the Personal Information Section of Disk Payroll.

Solution:

Change line 3900 in the "PR4ADD" program. Be sure you save a copy of the corrected program.

3900 FORI = Z1TOZ2: MID$(G$,I*8-7,8) = MKD$(E#(I-23)): NEXTI: LSET GG$ = G$: PUT4,1 + 2*(N – 1) + INT((Z – 2)/2):LSET FF$ = N$: PUT3,N:GOTO810

DISK SCRIPSIT (26-1563)

Problem:

Several people have indicated a desire to run non-Radio Shack printers, or serial printers which require codes which are different from those provided by our program drivers.

Continued on Page 6

Programming with Arrays in Level I BASIC

Arrays can be very useful because the subscript (the numbers inside the parenthesis) permits you to access different numbers easily. For example, A(I) will access the 12th element in array A if the variable "I" has the value 12. Similarly, A(2*J – 4) and A(K*L/6) will access the 12th element of A when J is 8, K is 2 and L is 36. This is because, in each case, the subscript evaluates to 12.

The fact that our Level I BASIC contains the single array "A," and that this array has only one dimension, can cause problems when you try to enter a program written in some other BASIC (like our Level II BASIC).

Suppose you need more than one array in one of your programs. You are not stuck because of your ability to compute subscripts. What you can do is break the array A into pieces, and treat each piece as a separate array. Assume that you need three arrays, with sizes of 20, 110 and 50 elements each.

One approach to getting three arrays would be to use three subscripts, I, J and K with I ranging from 1 to 20, J ranging from 21 to 130, and K ranging from 131 to 180. This can be inconvenient because, for example, the 28th element of the second array does not have the subscript 28, rather, it has 48. The 11th element of the third array has the subscript 142, not 11.

A better way is to have I vary from 1 to 20, J vary from 1 to 110, and K vary from 1 to 50. To do this we need to add a "displacement" to each subscript which will put us at the desired array location. For example, for the first array we could have A(I), for the second A(J + 30) and for the third array we could have A(K + 130). In this way I, J and K have the value we would "naturally" associate with the correct element, but in the second and third arrays we have added a displacement which shifts us to the correct location.

Now that you can handle more than one single dimension array, what about arrays with more than one dimension?

For example:

```
10 DIM Q(10,9)
20 FOR X = 1 TO 10
30 FOR Y = 1 TO 9
40 Q(X,Y) = 0
50 NEXT Y
60 NEXT X
```

Since Level I BASIC does not recognize the DIM statement for line 10, or the array "Q" for line 40, some modifications must be made. The simplest, most efficient way to convert this program is to eliminate the DIM statement and then convert all references to the array "Q" to the "A" array. The subscript must also be changed. Look at the DIM statement — take the number inside the parenthesis on the LEFT HAND SIDE of the comma—we will call this our OFFSET number. Now, everywhere the array appears in the program, multiply whatever is on the left hand side of the comma by the OFFSET number and add whatever is on the right hand side of the comma to the result.

In line 10 of the example program, the offset number is 10. Here is the example program, rewritten in Level I BASIC:

```
20 FOR X = 1 TO 10
30 FOR Y = 1 TO 9
40 A(X*10 + Y) = 0
50 NEXT Y
60 NEXT X
```

Line 10 is no longer needed. In line 40, Q was changed to A and (X,Y) was changed to (X*10 + Y). The array A will now serve the same purpose in Level I as the array Q served in Level II.

The techniques for storing multiple arrays and for storing arrays with multiple dimensions can be combined (with care) to provide any combination of arrays that you need, and that you have memory for.

Why aren't they equal?

David and Marcie McGlumphy of Red Bank, TN sent us this BASIC program:

```
10 CLS
20 A$ = "1.98"
30 B = VAL(A$)
40 C = 1.98
50 PRINT B,C
60 IF B>C THEN PRINT "B>C" ELSE IF
   B<>C THEN PRINT "C>B"
```

The print-out on the video is:

```
1.98        1.98
B>C
```

Their question is, 'Why isn't 1.98 equal to 1.98?'.

The answer will get a little complicated. First, a simple demonstration of what has happened.

Add lines 70 and 80:

```
70 B# = B:C# = C
80 PRINT B,B#,C,C#
```

The printout is now:

```
1.98            1.98
B>C
1.98            1.980000019073486
1.98            1.979999899864197
```

Since we converted from the single precision B and C to the double precision B# and C#, we can expect that only the first seven digits in the double precision values are significant:

B# = 1.980000 and C# = 1.979999

We see immediately that B# is larger than C# and see why the computer indicated that B was larger than C.

The decimal value 1.98, when converted to binary (the way it is stored in the computer), is an infinitely repeating value. This tells us that when we stored 1.98 into C, the computer "lost" some of the precision. The display is not affected since the computer rounds and displays only six digits (In this case, 1.979999 is rounded to 1.98 for display). When we converted the string value "1.98" to the number B, the computer rounded the binary result to give the exact representation. We can achieve the same result for C by changing line 40 to:

```
40 C = 1.98#
```

This tells the computer to store the double precision value 1.98 into the single precision C. The computer rounds to maintain as much of the double precision accuracy as possible.

This little program will show us that the two values are stored differently in memory:

```
10 B = VAL("1.98")
20 C = 1.98
30 B1 = VARPTR(B)
40 C1 = VARPTR(C)
50 FOR I = 0 TO 3
60 PRINT PEEK(B1 + I),PEEK(C1 + I)
70 NEXT I
```

The print out will be:

```
164     163
112     112
125     125
129     129
```

Pages 8/13-8/15 of the Level II Reference Manual, Second Edition provide the information you need to look at the way the computer has represented the two values in memory.

Here we only note that the last digit in the Least Significant Byte (LSB), 164 and 163, is different, and this accounts for the difference in B and C.

Model I Disk Drives

Only 399.00

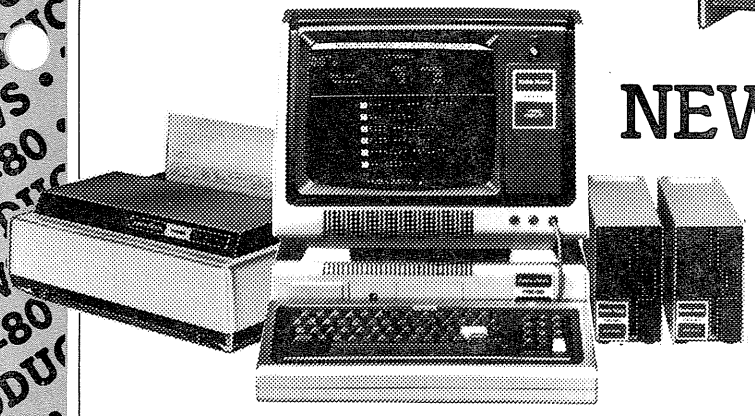
Sale ends Sept. 30
Regular price $499

THIS MONTH ONLY

First ever sale on Radio Shack Disk Drives

Now you can move up to the speed and efficiency of Disk storage and save money at the same time! Radio Shack's 5¼" Mini-Disks allow you to store up to 83K bytes of information on a formatted diskette. The first drive, 26-1160, includes Radio Shacks TRSDOS version 2.3, Disk BASIC, Manual and daisy chain cable for connecting up to four disk drives to your TRS-80 Model I Expansion Interface. Minimum system includes 16K Level II Model I and a 16K Expansion Interface.

26-1160/1161 . . . Sale Price 399.00



NEW LOW PRICES FOR:

16K Expansion Interface 26-1141 . . $429.00

Line Printer II 26-1154 . . . . . $799.00

Cable 26-1415 . . . . . $29.00

Upgrade your 16K Level II Model I to a 32K Business System for only **2055.00** (includes 16K Expansion Interface, Two Mini-Disk Drives, a Line Printer II and printer cable)

Upgrade your 4K Level I to a 16K Level II

Level II BASIC ROM Kit

You can move up to the higher computing power of Level II BASIC. The conversion is easy, we exchange the ROM chips in your Level I computer for the Level II ROM chips. Your local Radio Shack can arrange to have this conversion done for you. Level II can be placed in either 4K or 16K Level I TRS-80s. 26-1120 . . . . . $150.00
Required installation extra

16K RAM Upgrade with Numeric Keypad

Bring your 4K Level I or Level II TRS-80 up to a full 16K of RAM, AND gain the added convenience of a 12 key numeric keypad.
26-1101 . . . . . $200.00
Required installation extra

Radio Shack®

Retail prices in this Newsletter may vary at individual stores and dealers. The company cannot be liable for pictorial and typographical inaccuracies.

Most Accessory Items in Product News are Available Quickly on Special Order

Six Reasons Model II Means Business

64K TRS-80 Model II

ONLY

3899.00

1. COBOL Development System

Radio Shack's COBOL allows you to have your programs created in one of the most widely used Business programming languages. Once the program is written and running, it will generally run faster and in less memory space than a similar program in Model II BASIC. More speed, and more memory for your applications.

26-4703 . . . . . $299.00

2. General Ledger

Our single disk General Ledger allows you to handle 504 General Ledger accounts, enter up to 3072 documents each month and have as many as 50 entries on EACH of those documents (up to a total of 11,420 entries per month). We give you Document Balancing, Well-defined Audit Trails, Seven optional expense catagories and more.

26-4501 . . . . . $199.00

3. Payroll

Our single disk Payroll system will handle single state Payroll needs for up to 200 employees. Federal, State and City withholding taxes, Earned Income Credit Payments, Automatic End of Year W-2 form printing, and seven user-defined Workman's Compensation Classifications are just a few of the features of this program.

26-4503 . . . . . $399.00

4. Mailing List

This program will store Mailing List information on up to 3000 individuals or companies. A record is kept of both alphabetical and Zip Code sequences. Two file formats are available to help match the program to your specific needs. The program will handle five different label sizes with as many as five labels across a page.

26-4506 . . . . . $79.00

5. Accounts Receivable— Series I

This is a complete package, providing such features as open-item statements, changeable monthly messages printed on invoices, up-to-date customer information, aged account reports, audit trails, open credit reconciliation, and more.

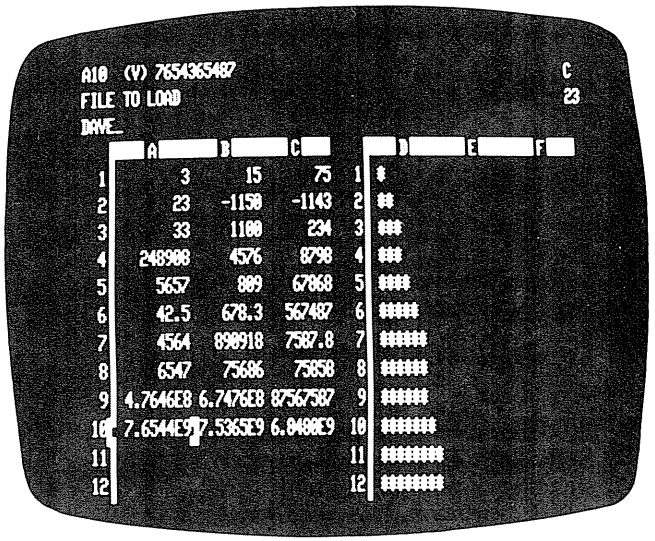
26-4554 . . . . . $199.00

6. Versafile

Model II Versafile provides you with an easy, format free method of storing information. Ideal for use in situations where the type of information to be stored is not well defined. You enter a sentence containing information. When you need something, simply "ask" a question. Versafile will provide the closest match and display the information.

26-4510 . . . . . $69.00

New Software . . . Just Arrived!



Model I—VisiCalc

VisiCalc is a program, for 32K Single disk TRS-80 Model I systems, which turns your computer into a giant columnar pad . . . a spread sheet which might contain sales figures, expenses, your portfolio, budget, financial statement or more. It can contain columns for projected future months, years, or any other unit you chose.

When your basic spread sheet is completed, you can do "What if . . ." calculations. For instance, you might change Gross Income to see the effect on Net Profit. VisiCalc will instantly adjust *ALL* figures affected by Gross Income, including projections for future periods.

You can store your figures and formats on disk, developing (if you wish) different "models" for various business situations, and even print them to an optional printer.

VisiCalc combines the powerful memory and electronic screen capabilities of the TRS-80 to solve problems that before have required hours spent with a calculator and accountant's spread sheet.

VisiCalc is featured in our September Flyer but, due to a shipment delay, may not be in your local Radio Shack until the end of September. If you place your order NOW, you will receive one of the first available packages.

VisiCalc 26-1566 . . . . . $99.95

Model II Compiler BASIC

TRS-80 Model II Compiler BASIC is a business BASIC system, designed for the development and execution of BASIC business applications.

The BASIC language is enhanced from the Model II Disk BASIC to include:

- Separately compilable BASIC and assembly subprograms accessible through the CALL statement.
- Full error control through ON ERROR and RESET statements.
- Compact binary file format through READ and WRITE file statements.
- COMMON statement to preserve variable values over a CHAIN.
- File compatibility with MODEL II TRSDOS COBOL.
- Fourteen digit floating point decimal format.
- Single-key ISAM.
- Pseudo-interactive program development mode.
- **Not** compatible with Model II Disk BASIC.

Compiler BASIC 26-4705 . . . . . $199.00

Profile II

Profile II is an extremely flexible data-base management system for 64K Model II TRS-80s, which allows you to create systems which meet your exact needs.

Each data-base can consist of up to:

- 853 bytes per entry
- Five user definable screens
- Five Label formats
- Five Report formats
- 20,000 records
  (85 byte records, 4 disk system)

Profile II also gives you:

- User-Defined Key fields
- All field lengths user-defined
- Fields that can be:
  Alphameric
  Numeric
  Decimal
  Protected
- All Data usable and modifiable in Model II Disk BASIC

Information may be selected by record number, or by using any combination of "Key" fields and qualifiers. Ex. Select all records with a Last Name greater than Smith who live in Fort Worth, Texas or whose First Name is John.

Profile II 26-4512 . . . . . $179.00

If you need to learn BASIC

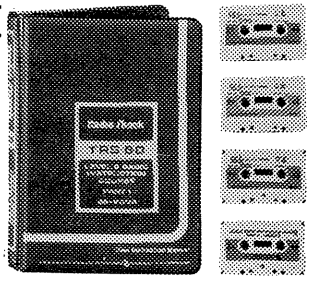
We can teach you!

Level I BASIC Course

Your 4K Level I TRS-80 is all you need to take advantage of this complete BASIC course. Previous programming experience is not necessary. The course provides an inter-active dialog between you and your computer.

26-2003 . . . . . $12.95

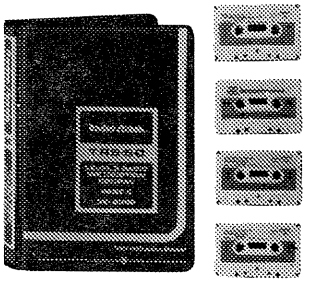
Level II BASIC, Part I



This is a beginners course designed to introduce you to the powerful Level II BASIC language. Topics include: INPUT, FOR-NEXT, GOTO, GOSUB, numbers, strings, and editing. Minimum equipment is a 16K Level II.

26-2005 . . . . . $14.95

Level II BASIC, Part II



These eight lessons allow you to use your 16K Level II TRS-80 to explore the more complex capabilities of Level II BASIC. Topics include: Arrays, Input & Output, Advanced string handling techniques, and Special Features.

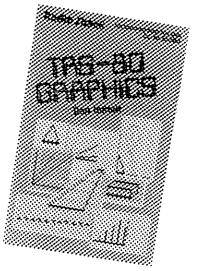
26-2006 . . . . . $19.95

Model I Disk BASIC

This course, used with your single disk Model I TRS-80, will guide you in the use of Radio Shack's Disk Operating System (TRSDOS) and Disk BASIC. Topics include: Disk BASIC Commands and Functions, Sequential and Random Access File techniques.

26-2007 . . . . . $29.95

TRS-80 Graphics



Add animation and graphics to your programs! Enter the exciting world of TRS-80 Graphics. Different methods of creating graphics, abstract art and elementary animation are just a few of the many topics covered. 142 pages. 62-2063 . . . . . $5.95

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TRS-80 Level II BASIC—a self-teaching guide

Make the most of your TRS-80! With the help of this step-by-step manual, you can teach yourself to read, understand and write programs for your computer at your pace. No previous computer experience is needed.

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Programming Techniques

This book assumes some knowledge of Level II BASIC. Subjects covered include: program debugging, SYSTEM tapes, sort routines, arrays, machine language, word processing, memory use, the Z-80 and more.

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TRS-80 APPLICATIONS SOURCEBOOK

If you have been wondering what type programs are available for your TRS-80, we have the answer. The Source Book is a compilation of numerous application software programs which are offered *by the author listed.* Application software categories include: Business/Accounting, Business/Inventory Control, Education — Classroom, Education — Home, Games, Home/Personal Use, Specific Industry/Profession and Statistics/Math. Over 1000 total entries!

26-2113 . . . . . Introductory Price 99 Cents

Computer Leasing

From Page 1

A & A Financial will not process or accept any lease contract that is not accompanied by evidence of a service contract through Radio Shack Contract Services or another qualified independent service company. The Radio Shack service contract now offers three service options to the customer: full on-site service; "limited" or "modified" on-site service and carry-in service. These options make it possible for you to decide which service alternative and cost is most applicable to your situation.

Perhaps the most asked question directed to A & A Financial concerns the price a system will be sold for at the end of the lease term, or what the fair market value of the system will be 39 months from today. While no one can guarantee what the market price will be in three years, there is historical data that has been compiled to help convince prospective lessees that A & A Financial will not try to charge 50-60 percent of the original cost.

Publications such as *Electronic News, Computer World* and *Data Pro* keep track of all types of computer products and through the years have discovered that small and mid-size systems average 8-12 percent of the original retail cost as a fair market value after three years. Secondly, as a part of the Tandy organization, A & A Financial will be dealing with manufacturer's replacement costs. Thirdly, all transactions will be completed on an "as is, where is" basis. This means that the lessee would purchase the system as is; no additional add-ons, reconditioning or selling. Therefore, A & A Financial will not have to pay for storage, refurbishment or additional sales commissions. Thus, if it is determined a system might be worth $600 and it would cost A & A Financial $150 to handle the system once the lease is terminated, A & A Financial could sell the unit to the lessee for $450 and not endanger the true lease nature of the program.

Another question which comes up from time to time concerns whether A & A Financial will pass any Investment Tax Credit (ITC) through to the lessee. The answer is no.

ITC is subject to specific rules regarding how much "credit" can be claimed. These rules of determination involve the "useful life" of the asset. If a company assigns a useful life of less than 3 years, no investment tax credit is earned; if less than 7 years, 6⅔ percent of the cost can be earned; if more than 7 years, the full 10 percent is allowed. A & A Financial has assigned a useful life of 5 years to each TRS-80 Microcomputer System, therefore only ⅔ of the full credit is allowed (6⅔ percent of the cost). This is the ITC that *could be* passed through to a lessee. But, since most customers would be expecting the full 10 percent, A & A Financial felt this smaller amount was not beneficial.

People have recognized that A & A Financial's monthly rental factor is generally less than independent lessors around the country. This is because those lessors who offer the ITC pass-through, "price" their rates assuming the ITC will be passed through to the customer. On those transactions where a lessee does not ask for the ITC, the leasing company then has a nice "cushion" of additional benefits. If A & A Financial were to pass through the ITC, the monthly rental factor would have to be increased to make up the loss. On a 1.5 megabyte Model II system currently leasing for $280 per month, A & A financial would have to charge approximately $330 per month to realize the same return. The decision was made to let the customer have the advantage of the lower monthly payments.

It might be well to mention there is *no Investment Tax Credit* available to either A & A Financial or the customer when the customer is a tax-exempt entity (schools, governments, churches, etc.). For this reason, the monthly rental factor used for commercial/business lessees is *not* applicable to tax-exempt customers. A & A Financial must be contacted by your local Radio Shack store or dealer before the store can quote rental prices for tax-exempt agencies.

One area of particular concern and some confusion has been the lessee's actual financial obligations in exercising his early termination privilege under our current program. When placing an order for computer equipment to be placed under lease, the prospective lessee pre-pays an amount equal to three (3) months' rent. This pre-payment is actually broken down as follows: (1) first month's rental paid in advance; (2) a security deposit (equal in value to two (2) months' rent). The penalty for early cancellation is forfeiture of the security deposit as liquidated damages. Therefore, an amount equal to two months' rent is "lost." In addition, the lessee owes rent at the stipulated monthly rental amount for the period of time the equipment was under lease. In the case of early cancellation, the lease is considered to be terminated when the equipment has been delivered to the store of original delivery, has been inspected by authorized Radio Shack personnel and A & A Financial has been notified to this effect.

Here are two examples of how credits and charges due would be calculated:

Monthly rent: $300.00

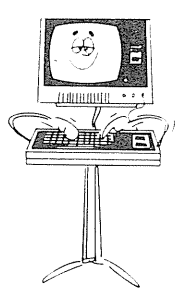
Date of Delivery/Acceptance:	04/18/80
Date of Cancellation:	07/04/80
Rent due 4/18-4/30	
(1/30 × 300.00 × 13 days	$130.00
Rent due May	$300.00
Rent due June	$300.00
Rent due 7/1-7/4	
(1/30 × 300.00 × 4 days)	$ 40.00
Security deposit	$600.00
Less first month's rent	($300.00)
Less security deposit	($600.00)
Balance due A & A Financial	$470.00

Monthly rent: $300.00

Date of Delivery/Acceptance:	04/18/80
Date of Cancellation:	05/02/80
Rent due 4/18-4/30	
(1/30 × 300.00 × 13 days)	$130.00
Rent due 5/1-5/2	
(1/30 × 300.00 × 2 days)	$ 20.00
Security deposit	$600.00
Less first month's rent	($300.00)
Less security deposit	($600.00)
Refund due lessee	$150.00

In summary, a lessee owes rent for the time he has the equipment; plus, he forfeits his security deposit as liquidated damages. This negligible penalty ($600.00 in these examples) compares most favorably with the Rule of 78's payoff of a 39 month loan of $8,965.00 or a net present value early termination of a finance lease of $8,937 on an equipment value of $8900.

For more information about leasing a TRS-80 Microcomputer, contact your local Radio Shack store or dealer.



Model I Software

(From Page 3)

Solution:

Radio Shack Computer Services has information which will allow YOU to write a machine language printer driver and then patch the driver into DISK SCRIPSIT. What we provide is information and routines to patch YOUR driver into SCRIPSIT. We cannot write a driver for you, nor can we give you help in writing your own driver. If you are interested in this information, contact Computer Services.

Advanced Statistical Analysis (26-1705)

Problem:

In analysis of variance with two groups, the counter for group two does not count correctly.

Solution:

To correct this problem, make the following changes to the "Tape Data Files" program:

DELETE 1090

Change these lines to read:

```
1060 GOSUB6000: JJ=0: FORJ=1TO8:
JJ=JJ+1: IFZ(J)="@"N(K)=M+JJ-1:
JL=J: GOSUB7000: JJ=0: K=K+1:
IFMT=3 M=M-JL

10090 E=0:KL=1:
      FORK=1TONT:E=E+1:

    IFZD(K)="@" THENKL=KL+1:
    E=E-1:
    GOTO10100: ELSEIFZI="Y"
    LPRINT "ELEMENT #"; E,"GROUP#"
    ;KL,ZD(K)

10095 PRINT"ELEMENT #";E,"GROUP#";
    KL,ZD(K): GOSUB9900: REM DELETE
    THE REST OF THE LINE
```

Teacher Aide (26-1713)

Problem:

A problem occurs if more than nine grades are assigned to a category.

Solution:

Two lines must be changed in the program.

Change line 240 to read:

```
240 FORI=1TO5: G(I)=VAL(MID$
    (BF$,63+(I-1)*7,4)):
    T(I)=VAL(MID$
    (BF$,66+(I-1)*7,4)): IFT(I)=0
    THEN G(I)=0 ELSE G(I)=G(I)/T(I)
```

Change line 630 to read:

```
630 BF$=RIGHT$(SF$(I),35): G(1)=
    VAL(MID$(BF$,1+(GC-1)*7,4)):
    G(2)=
    VAL(MID$(BF$,4+(GC-1)*7,4)):
    G(1)=G(1)+SD(I): G(2)=G(2)+1
```

Level I—Level II Compatibility

Please remember that Level I and Level II BASIC are not the same in every respect. If you have converted Level I programs to Level II and they no longer work correctly, you probably overlooked a necessary change. "PRINT AT" in Level I would be "PRINT @" in Level II. Also, where you can use the array in Level I freely, in Level II any array with more than 11 elements (0-10) must appear in a DIM statement.

Model II Supervisor Calls

Mr. Merrill E. Eastcott, Jr. of Panama City, Fl. has suggested the following changes to the Model II screen protect routine we published in the May, 1980 Newsletter:

```
DELETE 10
65 CLS
100 FOR I=1 TO 23
```

These changes give the routine a neater appearance.

Mr. Eastcott provided the following routine which allows you to print the contents of the video display to your line printer:

Enter the following machine language program using Editor/Assembler, or DEBUG.

1. Machine Language, start at HEX F000

```
                        ASEG
                        ORG   0F000H
21 08 F0                LD    HL,0F008H
E5                      PUSH  HL
2A 03 28                LD    HL,(2803H)
E9                      JP    (HL)
06 00                   LD    B,00H
DD 21 37 F0             LD    IX,0F037H
DD 70 00                LD    (IX+00),B
0E 00                   LD    C,00H
16 4F                   LD    D,4FH
5D                      LD    E,L
21 40 F0                LD    HL,0F040H
1D                LOOP  DEC   E
CA 33 F0                JP    Z,0F033H
3E 0B                   LD    A,0BH
CF                      RST   8
06 4F                   LD    B,4FH
0E 0D                   LD    C,0DH
3E 13                   LD    A,13H
CF                      RST   8
DD 46 00                LD    B,(IX+00)
04                      INC   B
DD 70 00                LD    (IX+00),B
0E 00                   LD    C,00H
C3 19 F0                JP    LOOP
C9                      RET
                        END
```

2. If you are using DEBUG, DUMP the above with START=F000, END=F03F

If you are using the Editor/Assembler, compile using ASEG and ORG F000.

3. Call BASIC and enter this program:

```
9010 SYSTEM"LOAD file":REM file IS THE
     FILENAME YOU USED TO SAVE
     THE MACHINE LANGUAGE CODE.
9020 DEFUSR0=&HF000
9030 X=ROW(0)+1
9040 Z=USR0(X)
9050 RETURN
```

It is important to use line numbers which are larger than any you might have in the programs you will use this routine with.

4. SAVE this file using the ".A" option.

5. You may now MERGE this file with any BASIC program using the MERGE command. To use the routine, use GOSUB 9010. The contents of the video, down to and including the line which contains the cursor, will be printed.

Our thanks to Mr. Eastcott for this information.

Model II Software Tips From Computer Services

Inventory Management (26-4502)

Problem:

If you go into the Review/Edit Inventory Items section and change a stock number, the Vendor number will sometimes change also. If a change occurs, the vendor number will become either zero or 201. This problem occurs in program versions 1.0 and 1.1.

Solution:

If you seldom change stock numbers, you may go in and edit the vendor number to its correct value each time you make a stock number change.

If you make frequent changes, or if you want to prevent this error from occurring, make the following change:

In version 1.0 (prior to May, 1980), in BASIC, edit line 2310 in the "RETINV" program.

```
2310 PUT 1,I(I,0): GOSUB1040: IFKF<>0
THEN KF=0: N1=I: N2=I(I,0):
I(I,0)=-I(I,0):VN=I(I,1):
ND=ND+1: GOSUB 3140: NI=NI-1
```

Save a copy of the corrected "RETINV" program.

If you have version 1.1 (May, 1980 and later), edit line 234 in the "IMS/BAS" program.

```
234 PUT 1,I(I,0): GOSUB184: IFKF<>0
THEN KF=0: N1=I: N2=I(I,0):
I(I,0)=-I(I,0):VN=I(I,1):
ND=ND+1
GOSUB292: NI=NI-1
```

Be sure to save a copy of the corrected "IMS/BAS" program.

Problem:

We are experiencing some problems, in which customers are running Inventory Management using the ORIGINAL diskette, then they change their minds about set-up parameters and cannot re-initialize.

Solution:

First, we clearly document that you should NEVER use your original diskette for any purpose other than creating BACKUPs.

If you must reinitialize IMS, do the following:

At "TRSDOS READY," type "BASIC -F:3"

When BASIC has loaded, enter the following program:

```
10 CLEAR 1000
20 KILL "SALEDATA/DAT"
30 KILL "CONTROL/DAT"
40 OPEN"D",1,"CONTROL/DAT",96
50 FIELD 1, 96 AS X$
60 LSET X$= STRING$(96,0)
70 PUT 1,1
80 PUT 1,2
90 PUT 1,3
100 PUT 1,4
110 PUT 1,5
120 CLOSE
```

After you have entered and verified this program, type "RUN" and press <ENTER>. Note: IMS version 1.0 does not have enough free diskette space to save a copy of this routine. Please don't try. This program will delete the system information. You should now return to TRSDOS and make a BACKUP of your diskette. Keep one copy as a Master File Copy. You are now ready to re-start IMS.

Payroll (26-4503)

Problem:

Information for the State of Oklahoma is incorrect in the Payroll manual

Solution:

On page 141 of the Payroll manual, under the "ADD THESE LINES" section, change line 2227:

From: 2227 G# = G#*.84 + 544

To: 2227 G# = G#*.84 + 368

Mailing List (26-4506)

Problem:

In some cases, when a large data file has been extensively edited, including adding, deleting, etc., the file will be split up and scattered on the diskette. This can cause the number of extents used to exceed fourteen, and a Disk Full error will occur even though the directory shows available space.

Solution:

To reduce the number of extents, it will be necessary to make a copy of the diskette. Use a TRSDOS diskette, and COPY the files. The first files to COPY are File1, File2, and File0. These are the files which have been scattered and which are causing the Disk Full error. By COPYing these files to an empty diskette, they will be consolidated. After these files have been copied, copy the rest of the files to the new diskette.

This procedure should reduce the number of extents to less than fourteen. For more information on the COPY function, check your Model II TRSDOS manual.

Problem:

When you add a name to the Mailing List program, and do not make an entry in every field, information from a previously accessed name may be copied into the unused fields. This occurs most frequently in extended format when the down arrow, F2 or ENTER keys are used to skip the remarks line. The result is that information from previous names is entered automatically.

Solution:

You may avoid this problem by always making some entry into every field, even if you only enter a blank.

If you wish to correct the program so that this problem does not occur, use the following procedure:

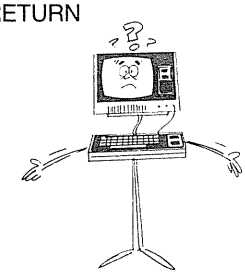
At TRSDOS READY, type:

BASIC

LOAD"MLS/BAS"

Change line 1610 to read (may be line 1600 in some early versions):

```
1610 E0$=SPACE$(M1):
     E1$=SPACE$(M1):
     E6$=SPACE$(M6): E2$="": E3$="":
     E4$="": E5$="": E7=0: E8$="":
     RETURN
```



Model II Inventory Control Series I (26-4552)

This software package will not be available. The program was being done for us by an outside vendor, and has not been received in an acceptable condition.

If you have been waiting for this new package, please accept our apologies. Inventory Management (26-4502) is currently available and we hope that it will meet your needs.

Radio Shack®
MICROCOMPUTER NEWS
700 ONE TANDY CENTER
FORT WORTH, TEXAS 76102

Seventh Floor (From page 1)

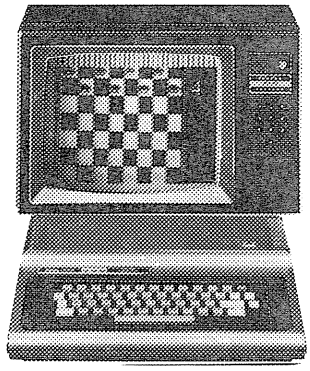
The Model III starts with the 4K Level I at $699 (no recorder included) which is the same as Model I except it has sockets for 48K RAM, a printer interface and printer commands are added to its Level I BASIC. Like all Model IIIs it will run appropriate Model I software.

Next is the Model III 16K with Model III BASIC for $999 (without recorder). Included is upper/lower case, 2 speed cassette interface (500 baud Level II and 1,500 baud), real time clock, 14K ROM, and room for an RS-232C board which costs $99. The extra 2K ROM adds a lot of system software features.

Top of the Model III line is the 32K Model III Desktop Business Computer for $2495. It includes two 40 track, double density mini-disk drives of 175K capacity each, 32K RAM and the RS-232C interface. Two more drives can be added externally.

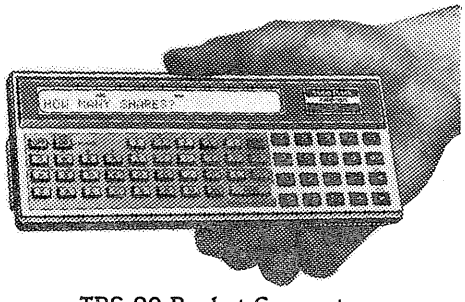
Virtually all Model I software is compatible with the Model III. There are two main differences. One is that the 16K $999 Model III has 256 bytes less user memory and the other is that virtually all addresses we do not publish were changed. And that is why we do not publish them. Like all TRS-80s you can upgrade the lowest Model III to the top. One note of incompatibility — the Model III bus is not the same as the Model I bus.

New computer number two is the TRS-80 Color Computer. At $399 it includes a deluxe 53 key keyboard, 4K RAM, 8K Color BASIC in ROM, built-in modulator to connect to any television, RS-232C interface, 1500 baud cassette interface (Cassette recorder not included), joystick connectors and a door where a ROM software pack, which we call a Program Pak™, can be inserted. The Color Computer can be upgraded to 16K RAM and 16K Extended Color BASIC (Expected in late November 80). Color BASIC programs and tapes are NOT compatible with Model I or Model III. One rumor that was true — the processor is a 6809E (Model III uses a Z-80).



TRS-80 Color Computer

New computer number three is the TRS-80 Pocket Computer at $249. While others talk about a pocket computer, we have it. It programs in Level I BASIC but includes 15 arithmetic functions, 10 digit accuracy and has some additional string variable capabilities.



TRS-80 Pocket Computer

The Pocket Computer has a 57 key keyboard (many double function) and a large 24 character, alphanumeric LCD display.

The computer is only 6⅞" by 2¾" by ½," is battery operated (300 hour battery life) and retains its memory even when turned off.

It functions like a scientific calculator direct from the keyboard or runs BASIC programs. Several programs can be in memory at once, each called by a single key. The memory is 1.9K, but since each BASIC command takes only one byte, it is very efficient.

With the addition of the cassette interface for $49.00 and a recorder you can load and save programs, yours or ours. We have 8 programs available already.

All three of these great new TRS-80s are available in limited quantities, and all are listed in our 1981 Annual Catalog which should be available in your local Radio Shack Store. By the end of September you can go back to that store for your copy of our new 36 page, full color computer catalog.

We have a lot of other new products, but space does not permit my describing them in this issue. Next month I'll tell you about some great new printers.