

### Fort Worth Scene

We do not usually announce new peripheral computer products before they are available, but we are making an exception for our TRS-80 NETWORK I.

The Network One controller is a low cost alternative to the cassette recorder for saving and loading programs in a classroom type environment. The Network I allows from one to sixteen TRS-80 Model I's to be connected to a central Model I disk system. Transfer between units is via the cassette ports using CLOAD and CSAVE. Transfer is done at 300 baud.

Network I will allow any or all of the student stations to be loaded with the same program at the same time. The system will also permit student programs to be loaded into the central system on a one at a time basis.

Minimum requirements for the central Model I are:

- 1-26-1056 16K Level II
- 1-26-1141 16K Expansion Interface
- 1-26-1160 Disk Drive
- 1-26-1210 Network I Controller
- 1 to 16 Level II systems
- 1 to 16 Network connector cables (included)

In addition to the minimum equipment, any or all of the computers in the system can be equipped with disk drives, printers, and other devices.

#### TRS-80 Model I NETWORK I.

26-1210 ..... \$499.00

(Available March 1, 1980)

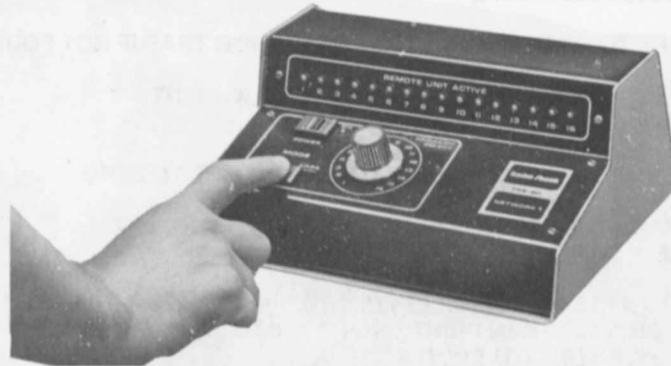
### Notes on Previous Newsletters

In the July '79 newsletter we indicated that a problem exists with some of the early CTR-80 cassette recorders, and that a modification is available. We should have indicated that this is a modification to the recorder. This modification is in addition to the cassette load modification to the keyboard which simplifies loading of cassettes in Level II.

We heard recently that a new TRS-80 Computer Club is forming. This one is at:

107 Boyd Street  
Clarksburg, WV 26301

If you are in central West Virginia, you may want to write to them for details.



**NETWORK I—Connect up to 16 TRS-80s™ to one Disk System.**

### TRSDOS™ 2.3 is Here!

TRSDOS 2.3 (Model I) is currently being shipped to Radio Shack stores. If you are an owner of a previous version of Model I TRSDOS, please contact the store where you purchased your DISK system. The store manager either will have your copy of TRSDOS 2.3, or will be able to get you one soon.

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#### MODEL II CORNER:

If you use the 'AUTO' command with your TRS-80 Model II, you should realize that AUTO is NOT copied during a BACKUP operation. You must reinitialize AUTO after each BACKUP. This feature of Model II TRSDOS is different than the corresponding feature on Model I. By not copying the AUTO feature, we allow you to check the DIRectory and perform other operations without having to first override AUTO.

#### NOTES ON MODEL II OPERATION:

It is important that you remove ALL diskettes from the MODEL II before turning the system ON or OFF.

Model II diskettes are write protected by leaving the front TAB OFF. If you want to write to a disk, the TAB must be in place.

If you are using the RS-232 ports, and are only using one of them, the unused port MUST be terminated using the terminator described in your MODEL II information.

If you do not have expansion disk units attached to your MODEL II, you must always have the expansion plug in place. Your MODEL II may Boot-up without the plug, but intermittent disk errors WILL occur!

It is normal for the hub inside the disk drive to rotate at all times, even when a diskette is not in place.

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### COMPUTER SERVICES ADDRESS AND PHONE NUMBERS

Computer Services  
900 Two Tandy Center  
Ft. Worth, Texas 76102

Computer Services  
Phone Numbers:

1-800-433-1679 (WATS except Texas)

1-800-772-5914 (WATS inside Texas)

1-817-390-3583 (Switchboard)

All TRS-80 related calls and mail should be directed to the above address, or one of the above phone numbers. Computer Services is staffed with knowledgeable people who are there to answer your questions. If they do not have an immediate answer, they have the internal contacts to get the answers in a minimum amount of time. Questions sent to the Newsletter must be sent to Computer Services via internal mail, which simply delays your response.

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# RADIO SHACK MICROCOMPUTER NEWSLETTER

The following disk program was written to allow us to list programs on any printer. Your program must have been SAVED using the .A option (ASCII format). Simply RUN "LISTER/BAS"; answer the questions, and you will be able to list programs using any line length, with neat headings and skips at perforations.

```
10 ' LISTER/BAS 2.0 — BASIC PAGE LISTER
20 ' COPYRIGHT (C) 1979 TANDY CORP.
30 CLEAR 1000 : DEFINT A-Z
32 '
34 ' ATTEMPT TO OPEN REQUESTED FILE; ERROR TRAP IF NOT FOUND
36 '
40 CLS : PRINT TAB(20) "BASIC PAGE LISTER 2.0":PRINT
50 LINEINPUT" ENTER FILESPEC: ";FS$
60 ON ERROR GOTO 4000:OPEN "F",1,FS$
70 ON ERROR GOTO 4100: PG=0 ' PAGE COUNT SET TO ZERO
71 '
72 ' 1ST CHARACTER OF LINE IS 0 TO 9 OR 48 TO 57 DECIMAL
73 ' OR FILE IS NOT ASCII!
74 '
80 LINEINPUT#1,L$: D= ASC(LEFT$(L$,1))
90 IF D<48 OR D>57 THEN PRINT"" NOT ASCII BASIC FILE": GOTO 50
100 LINEINPUT" ENTER TITLE: ";TL$
110 LINEINPUT" TIME AND DATE: ";DT$
120 LINEINPUT"ENTER PAGE WIDTH: ";WD$
125 IF WD$="" THEN WD=64: PRINT TAB(17); CHR$(27)WD ELSE WD=
    VAL(WD$)
130 IF WD<64 OR WD>132 THEN PRINT"" BAD WIDTH (64-132 ONLY)
    "" :GOTO 120
135 INPUT"DO YOU WANT EACH 'STATEMENT' ON A SEPARATE LINE";SL$
136 IF LEFT$(SL$,1)="Y" THEN F1=1 ELSE F1=0
140 PRINT:INPUT"TYPE 1 FOR SINGLE SPACE, 2 FOR DOUBLE"; SP
142 '
144 ' *** MAKE SURE THE PRINTER IS READY ***
146 '
150 PRINT:LINEINPUT"READY PRINTER — THEN PRESS ENTER > "; AS$
160 IF PEEK(14312)>127 THEN PRINT"" PRINTER NOT READY "" :GOTO 150
170 POKE 16424,67:POKE 16425,1 ' SETLINE/PAGE & LINE COUNT
180 GOSUB 500:GOTO 220
190 GOSUB 500
200 IF EOF (1) THEN 330
210 LINEINPUT#1,L$
215 IF F1=1 THEN GOSUB 600:GOTO200
220 W1=WD:T=0
230 W=W1:IF LEN(L$)<W THEN W=LEN(L$)
240 J=INSTR(L$,CHR$(10))' CHECK FOR LINEFEED
250 IF J>0 THEN W=J-1 ELSE IF LEN(L$)>W1 THEN J=-1
260 LPRINT TAB(T); LEFT$(L$,W)
263 IF J<>0 AND T=0 THEN T=5:W1=W1-T
265 IF SP=2 THEN LPRINT" " ' DOUBLE SPACE
270 IF J>0 THEN W=W+1
280 L$=RIGHT$(L$,LEN(L$)-W):IF L$="" THEN 310
290 IF PEEK(16425) >62 THEN LPRINT CHR$(12): GOSUB 500
300 GOTO 230
310 IF PEEK(16425) <63 THEN 200 ' PAGE FINISHED?
320 LPRINT CHR$(12): IF EOF(1) THEN 340 ELSE 190
330 LPRINT CHR$(12) ' ALL DONE
340 GOSUB 1000:GOSUB 3000:PRINT:PRINT"" END-OF-LISTING "" :END
497 '
498 ' *** PRINT DASH AND HEADING ***
499 '
500 GOSUB 1000:GOSUB 2000: RETURN
600 NN=0:FOR J=1 TO LEN(L$):V$=MID$(L$,J,1):L=L+1
610 LPRINT V$;:IF L>=WD THEN LPRINT" ":GOSUB700:LPRINTTAB(10);:
    L=10
620 IF V$=CHR$(34) AND NN=1 THEN NN=0:GOTO640
630 IF V$=CHR$(34) AND NN=0 THEN NN=1
640 IF V$=":" AND NN<>1 THEN LPRINT" ":GOSUB700:LPRINTTAB(5);:L=5
650 NEXT J
660 LPRINT" ":L=0
```

(Continued on page 4)

## User Programs and Hints

In response to Mr. Thorpe's Screen Graphics Hard Copy Generator (Aug/Sept 1979) we received several alternate versions which are virtually identical. They require fewer than eight lines. We are giving you two of them since the second one has an interesting scaling factor.

Mr. James G. Runyan of Rolla, Mo. sent this version:

```
6000 FOR B= 0 TO 47
6010 FOR A= 0 TO 127
6020 IF POINT(A,B)= -1 THEN
    LPRINT "#"; ELSE LPRINT " ";
6030 NEXT A
6040 LPRINT" "
6050 NEXT B
6060 RETURN
```

Mr. Craig Stanley of Mobile, Al. sent a version which allows you to print the entire video in eighty columns. This is done using a scaling factor in line 3020 which skips some columns as you progress across the screen. This could be very useful if you only have an eighty column printer, or if your graphics did not require high resolution. Mr. Stanley sent an example of a printout which was very well done. Mr. Stanley's routine:

```
3010 FOR D= 0 TO 47
3020 FOR X= 0 TO 127 STEP 1.6
3030 IF POINT(X,D) THEN LPRINT "";:
    GOTO 3050
3040 LPRINT " ";
3050 NEXT X
3055 LPRINT" "
3060 NEXT D
3070 RETURN
```

The above responses are typical of the responses we received. Our thanks to those of you who took time to write. We hope that in the future as you have ideas that you will send them to us. We will publish as many user programs and letters as we have room for. Note that short programs get published faster than large ones.

Two comments we should make: First, most programs which are sent to us by users do not run correctly. Both of the above programs contained minor errors which prevented them from running. Please check your programs carefully before sending them to us. As our work load increases, we will be less able to find and correct minor errors. Programs as short as these pose no problem, but a program of several hundred lines with only one or two errors is completely unusable.

## Model II Hint

Three CHR\$ codes which may be of interest are:

```
CHR$(25) - WHITE LETTERS ON BLACK
CHR$(26) - BLACK LETTERS ON WHITE
CHR$(27) - CLEAR SCREEN
```

NOTE: Some items available on special order only from most stores.

# NEW!

## TRS-80 Line Printer III



**\$1999<sup>00</sup>**

**Cable Included**

The Radio Shack TRS-80 Line Printer III is designed for those applications which require high speed and wide paper widths. It prints 120 characters per second. To make the printer even faster, we gave it the ability to print in both directions. No more waiting while the print head returns to the left! And to give it just a little more speed, we put in a microprocessor and made the print head "logic seeking". The head stops moving when there is nothing left to print, and it does not have to return to the left or right side of the carriage before beginning the next print line. All of this adds up to maximum throughput.

To ensure precise paper positioning, the Line Printer III is tractor-driven. Paper alignment is simplified because the normal linefeed switch is augmented with up 1/8th line and down 1/8th line paper feed switches. These three switches used together ensure fast, accurate alignment of all your forms.

The printer handles paper from single thickness up to original plus four copies. The Line Printer III is not very particular about how your forms are made, either. You can software select either 6 lines or 8 lines to the inch vertically and 5 or 10 characters to the inch horizontally. If you do select 5 characters to the inch, there is no need to worry about the paper not being 30 inches wide, wraparound is automatic to keep you from losing any data.

The printer has all ASCII characters from decimal 32 to decimal 127, which includes upper and lower case alphabetic characters, numbers, underline, braces, arrows and many others. You will like the appearance of our 9 by 7 dot matrix characters, which allow our fast print speed while maintaining excellent readability.

Another feature you will appreciate is our restart switch. If you run out of paper while printing, you do not want to lose the information which is currently in the buffer. No problem, simply reload the printer with paper and press restart. Printing will continue with no loss of information. If you should need to reset the printer, we also provide a reset switch so you do not have to power down and then back up.

Controls are provided which allow you to adjust print penetration for multi-part forms. Print head life is rated at 100 million characters. The ribbon is an easy-to-install cartridge which should eliminate dirty hands and smudged letters.

You can turn the printer on first thing each morning and leave it, always waiting, with quiet operation assured because the motor doesn't run until you are ready to print.

You will find a complete line of supplies for Line Printer III available from Radio Shack. We can supply you with ribbon cartridges, tractor feed paper (both 9" and 14" widths), tractor feed mailing labels and cables which allow you to run the Line Printer III with either TRS-80 Model I or Model II.

<b>TRS-80 Line Printer III. 26-1156</b> .....	<b>1960.00</b>
<b>Model I Printer Cable. 26-1401</b> .....	<b>39.00</b>
<b>Model II Printer Cable. 26-4401</b> .....	<b>39.00</b>
<b>Ribbon Cartridge. 26-1414</b> .....	<b>21.95</b>
<b>9½ x 11" Fanfold Paper. 26-1403</b> .....	<b>37.95</b>
<b>14¾ x 11" Fanfold Paper. 26-1417</b> .....	<b>49.95</b>
<b>Mailing Labels. 26-1404</b> .....	<b>19.95</b>

# Model II General Ledger Now Available

The Radio Shack TRS-80 Model II General Ledger program is the first in a series of programs designed to help in all phases of your company's activities. It features a user-defined Chart of Account Numbers, Automatic Out of Balance detection, Entry Totaling, Document Balancing, seven optional Expense Categories and well-defined Audit Trails.

The only accounts required by the system are "Year-to-Date P&L" and "Retained Earnings". In addition you must have at least one income and one expense account. If you use Expense Categories for more detailed income statements, expense accounts do not need to be grouped numerically by category.

The Manual will take you through setting up and using the Model II General Ledger. "Menus" are used throughout with touch option selection.

## CAPABILITIES

- Number of Accounts — 504 (Account numbers 1000-9999)
- Number of Entries — 50 Entries per document  
3072 Documents per month  
11,420 Entries per month
- Numeric Accuracy — 16 Digit accuracy
- Printing Capacity — \$99,999,999.99

## Reports Printed Include

- Chart of Accounts
- Trial Balance
- Document List
- Posting Summaries
- Ledger Detail Report
- Income Statement (Profit and Loss)
- Balance Sheet

## Hardware Required

- Radio Shack's 64K Model II
- 132 Column Printer:  
Line Printer III (26-1156) or  
Line Printer I (26-1152)
- Appropriate Printer Cable

Model II General Ledger. 26-4501 ..... 199.00

XYZ COMPANY		PAGE 1	
BALANCE SHEET			
AS OF JAN 1 1980			
<b>ASSETS</b>			
<b>CURRENT ASSETS</b>			
1010 CASH ON HAND	1,234.18		
1020 CASH IN BANK	9,475.86		
1030 ACCOUNTS RECEIVABLE	25,996.16		
1040 BAD DEBT ALLOWANCE	500.00-		
1050 HOUSE INVENTORY	19,293.20		
		55,499.40	
<b>FIXED ASSETS</b>			
1510 FIXED ASSETS	12,000.00		
1520 DEPR. ALLOWANCE	3,500.00-		
		8,500.00	
<b>TOTAL ASSETS</b>			63,999.40-
<b>LIABILITIES</b>			
<b>CURRENT LIABILITIES</b>			
2010 ACCOUNTS PAYABLE	10,163.32-		
2020 ACCRUED TAXES	932.00-		
		11,095.32-	
<b>TOTAL LIABILITIES</b>			11,095.32-
<b>CAPITAL</b>			
3010 COMMON STOCK	5,000.00-		
3020 PREFERRED STOCK	3,000.00-		
3030 TREASURY STOCK	2,000.00		
3998 YEAR-TO-DATE P & L	2,400.00-		
3999 RETAINED EARNINGS	17,920.30-		
		26,320.30-	
<b>TOTAL CAPITAL</b>			26,320.30-
<b>TOTAL LIABILITIES AND CAPITAL</b>			63,999.40-

XYZ COMPANY		PAGE 1			
INCOME STATEMENT					
FOR THE ONE MONTH ENDING JAN 01, 1980					
ACCOUNT	DESCRIPTION	CURRENT	%	YEAR-TO-DATE	%
<b>GROSS SALES</b>					
4010	CASH SALES	4,567.09-	21.4	4,567.09-	21.4
4020	30 DAY CASH SALES	15,498.00-	72.5	15,498.00-	72.5
4030	CREDIT CARD SALES	1,345.54-	6.3	1,345.54-	6.3
	<b>TOTAL GROSS SALES</b>	21,410.71-	100.1	21,410.71-	100.1
<b>SALES EXPENSES &amp; ALLOWANCES</b>					
		20.21	0.1	20.21	0.1
<b>GENERAL OVERHEAD</b>					
6200	UTILITIES	166.43	0.8	348.98	1.6
6270	TAXES	250.00	1.2	250.00	1.2
6280	DEPRECIATION	800.00	3.7	800.00	3.7
6290	ACCOUNTING	457.89	2.1	457.89	2.1
6300	LEGAL FEES	56.00	0.3	56.00	0.3
6310	INTEREST	3.22	0.0	3.22	0.0
6320	SUPPLIES	45.00	0.2	45.00	0.2
	<b>TOTAL GENERAL OVERHEAD</b>	7,063.66	33.0	7,063.66	33.0
<b>TOTAL INCOME</b>		21,390.50	100.0	21,390.50	100.0
<b>TOTAL EXPENSES</b>		18,990.50-	88.8	18,990.50-	88.8
<b>NET PROFIT</b>		2,400.00	11.2	2,400.00	11.2

## TRS-80 Model I FORTRAN is Here!

Now available for TRS-80 Model I (32K with Disk) is a complete FORTRAN package which conforms to the American National Standard FORTRAN language described in ANSI document X3.9-1966, with a number of language extensions and restrictions. The FORTRAN package includes FORTRAN-80, EDIT-80, LINK-80 and LIBRARY — everything you need to create, compile, and execute FORTRAN programs on your TRS-80.

We start you out with a simple program and step by step instructions on how to create this program. This gives you a 'feel' for the mechanics of program development. Then you are off to explore and develop this new world of TRS-80 programming.

If you are already familiar with FORTRAN you should find TRS-80 FORTRAN easy to use and a pleasure to execute. If you are an experienced TRS-80 BASIC programmer you may want to read through the manuals to get a feel for the structural and syntactical differences between BASIC and FORTRAN. Do not be afraid to 'get your feet wet', remember the best way to learn is to DO.

EDIT-80 (EDIT/CMD) is both line oriented and character oriented. You will use EDIT-80 to actually 'write' your programs. EDIT-80 allows you to create new programs and edit old ones. And since you are working with source codes, editing is very easy. The commands are simple and straightforward while being very powerful. The manual has a section of four chapters which introduce the EDIT-80 commands, and then two addi-

tional chapters of enhancements and techniques. The appendices provide quick reference for command summaries, special characters, error messages and file formats.

F80 is your FORTRAN compiler. This program allows you to check your FORTRAN source listings for errors, compiles object code, and can provide you with both relocatable object files and listing files with a variety of format options.

LINK-80 (L80) is the program which loads your relocatable object code into memory and provides library routines from FORLIB/REL. LINK-80 can also be used to create a TRSDOS CMD file which will execute directly under TRSDOS.

The FORTRAN subroutine library is a collection of relocatable subroutines used by FORTRAN. These subroutines are also available to the assembly language programmer. A list of subroutines available is provided.

Your TRS-80 FORTRAN package includes two TRSDOS diskettes with F80, L80, EDIT/CMD, and FORLIB/REL; and three users manuals: FORTRAN-80 Reference Manual, which is a complete FORTRAN language manual, the LINK-80 manual and an EDIT-80 manual.

We think you will like TRS-80 FORTRAN. It's one more step to keep TRS-80 "The biggest name in little computers™."

26-2201 ..... 99.95

## Have Fun with TRS-80 Casino Games Pack!

Would you like a trip to Las Vegas or Monte Carlo without leaving your computer keyboard? Now Radio Shack makes it possible! Our new software package, CASINO GAME PACK contains six of the most exciting games of the big-time casinos, and the graphics are dynamite!

All the games have the same odds as the real thing. But unlike the brutal halls of Vegas, you won't go home with empty pockets.

The programs come on 3 cassette tapes for your 16K Level II TRS-80.

**BACCARAT** — The coup-de-grace. One of the most complex and intriguing games ever conceived! Learn all those rules before you visit the tables. With your TRS-80 as dealer and bank, you never worry about "is a play legal", if it is not legal, the computer will not let you do it. As you play, the workings of the game and the effects of the rules become more apparent. Invite the whole block for BACCARAT, try the 'Chemin-de-Fer' version. Minimum bet on this game is \$20.00 so prepare yourself for some excitement, and a few tense moments when your bank roll starts running out.

**SLOT MACHINE** — Turn your TRS-80 into a one-armed bandit. This bandit spins three wheels with 20 positions on each wheel. 8000 possible combinations. Hit the right one and the payoff is good, hit the wrong ones too often, and you will not get 97 cents back for every dollar you put in. (That is the average return over an extended period of play). This slot machine has cherries, oranges, plums, bells, a two-star jackpot, a four-star jackpot and, of course, lemons.

**WHEEL OF FORTUNE** — Break the bank on this old carnival game. The bank only starts with \$100.00, so it can be done, but

it is not easy! Play with seven of your friends, or play by yourself! The numbers you can play are 1, 2, 5, 10, 13, 20 and 40 with the payoffs for each number running from 1:1 up to 40:1 for 13 and 40. If every one is happy with the last bet, just press ENTER to go again.

**KENO** — Win the BIG money on the spots. You only have to play once to win \$25,000.00, and there are eight different ways to do it. There are 73 different combinations paying \$1.00 to that elusive \$25,000.00. Of course there are several hundred (thousand?) ways to lose your dollar bet. The rules and action are the same as they are in real life, with you choosing to cover one to fifteen spots. If you are a "system" player, this game will give you the chance to fine tune that system — without losing your shirt.

**CRAPS** — Bet on the computer to roll a "natural" or "crap out". 'VITO' the computer is rolling hot, so place your bets on any of the six table bets. Change your bet at any time up to the rolling of the dice. Then let it ride or change before each new game. Play safe and bet that Vito will CRAP OUT, or be bold and bet he will throw BOXCARS first roll out.

**ROULETTE** — Place your bets and watch the wheel spin! Up to six players can use this game at one time. Place your bets, odds range from 1:1 up to 35:1. Only one bet per player PLEASE! If you want to place more than one bet, you can play two or more positions. Watch as the wheel spins round and round, then tense as the marker bounces around and finally settles on that one lucky number. The computer will leave no doubts as to who won or lost. See if you can come up with a "system" to beat the computer. People have tried in Vegas, now you can try at home!

26-1806 ..... 19.95

## Do You Need a Friend? Someone to Talk to?

Meet ELIZA. A very curious, persistent lady who has never revealed anyone's secrets. She will ask you searching questions, trying to help you find your true motives. If you try to get too personal, if you ask too much about Eliza, she will direct the conversation back to you. She is a wonderful companion, willing to sit for hours and listen to you 'talk' about yourself. Simply type your feelings, thoughts, gripes and answers on your TRS-80 Model I keyboard. Eliza will respond almost immediately with a comment, thought, or question.

You may have to remind yourself, but Eliza is well aware of the fact that she is a computer and a machine. Talk to her about this, and she will certainly have something to say!

Eliza, of course, is a program for your 16K Level I or Level II TRS-80. The program will accept your entries from the keyboard, "analyze" them and respond. Most of the time you will find the response very pertinent.

Don't take Eliza too seriously, she is just a program simulation of artificial intelligence. Responses are the result of analyzing your input, and responding.

There is another side of Eliza, she can actually "speak" to you! All you need is your 16K TRS-80 and our Voice Synthesizer, 26-1180. If you run the "TALKING ELIZA" version, the responses will not appear on the screen, and Eliza will not insert parts of your phrase into her responses. You may spend many hours listening to "ELIZA" discuss your keyboard inputs.

26-1908 ..... 14.95

## Tired of Playing Chess? Try TRS-80 Checkers!

Now Radio Shack provides CHECKERS-80, a machine language checkers program with two levels of difficulty. Any 16K TRS-80 Model I will allow you to use this interesting program. Level A difficulty allows the computer to 'look ahead' four moves, level B looks ahead six moves. Can you do that? If not, you are going to get beat. The program shows no mercy, no illegal moves, no more skipped jumps.

Don't be too surprised when the computer starts forcing you to jump, it has a plan and if you can not come up with a better one quickly you may as well resign.

Kings are crowned automatically so watch your home row! We think you will like this version of checkers, and if you are not careful, you will be addicted! . . . just one more game . . .

26-1907 ..... 9.95

## VOXBOX™ — Speech Recognition for TRS-80 Model I

Now you can train your Level II Model I TRS-80 to respond to spoken commands. You define up to 32 words or short phrases (up to 1.2 seconds) and the VOXBOX software will store them in memory for reference. Then use the Level II USR function to call the recognition sequence. It is as easy as saying ONE, TWO, THREE (or anything else for that matter).

Once you have trained your computer, simply speak into the VOXBOX microphone (included) and see your TRS-80 do what you have told it to.

We provide you with the proper machine language program for initialization, training, and recognition. Then to help you along, we provide three demonstration programs on cassette — inventory control, lunar lander, and voice plot so you can 'see' what the computer 'hears.' We provide you with necessary memory addresses, entry points, everything you need to use VOXBOX. Just remember that this is one of the first affordable devices in a new and unexplored technology. Proceed cautiously before committing the unit to any serious application.

26-1181 ..... 169.95

## Monitor Income and Expenses with Budget Management

Our Model I BUDGET MANAGEMENT system now provides you with an easy to use way of planning a monthly budget. Then you can monitor your income and expenses as the month progresses. The reports will tell you in both dollars and percentages how you are doing when compared to your budget amounts.

The Initialization program provides you with a ready made budget system including Income (regular and variable). Savings goals, and a detailed expense list of over 20 different expense types. Of course we provide an easy way for you to add and delete items so you can tailor the program to YOUR budget. Other programs included are Data entry, Complete editing, and a Report program which lets you print reports on either the video or a 132 column printer.

If you are running BUDGET MANAGEMENT in 16K of memory you can expect:

- 60 ACCOUNTS OF ALL TYPES
- 50 CHECKS PER MONTH
- 20 DEPOSITS PER MONTH
- 25 CASH EXPENSES A MONTH
- 20 SAVINGS TRANSACTIONS PER MONTH

The program is designed to run with either TAPE or DISK so you can use your system to its maximum. If you are an experienced programmer, you will appreciate the way we wrote the programs. We included program source listings and give you all the information you need to customize these programs.

26-1603 ..... 19.95

## SUBHUNT by WALLY of MERRVILLE, OHIO

```

10 CLS:INPUT"DO YOU WANT
INSTRUCTIONS "; AS:IF AS="YES"
THEN 60
20 CLS:FORX = 403 TO 851 STEP
64:READ Y: PRINT@X,Y:: NEXT:
DIM A(8,8): FOR A = 1 TO 8: FOR
B = 1 TO 8:READ A(A,B): PRINT@
A(A,B), "X";: NEXT B,A: RESTORE:
FOR X=341 TO 362 STEP 3:READ
Y:PRINT@ X, Y:: NEXT: PRINT@28,
"SUB-HUNT";
30 A = RND(8): B = RND(8):
PRINT@128, "WHERE DO YOU
THINK THE SUB IS";: INPUT X,Y:
    
```

```

F=F+1: IF X=A AND Y=B THEN
40 ELSE IF F>10 THEN 50 ELSE 30
40 PRINT@ A(A,B), "X";:PRINT@128,
"YOU DID IT! YOU SANK THE SUB!
AND IN ONLY ";F;" SHOTS":
INPUT"WANT TO PLAY AGAIN";
AS:IF AS="YES" RUN ELSE END
50 PRINT @ A(A,B), "X";: PRINT@128, "I
AM SORRY! YOU RAN OUT OF
TORPEDOES!":INPUT"WANT TO
TRY AGAIN";AS:IF AS="YES" RUN
ELSE END
60 CLS:PRINT TAB(28);"SUB-
HUNT":PRINT TAB(28)"-----":
PRINT:PRINT"TRY TO SINK THE
SUB WITH YOUR TORPEDOES":
PRINT"THE COMPUTER WILL TELL
    
```

```

YOU WHEN YOU HIT THE SUB":
PRINT"ALSO, THE SUB DOES
MOVE!": PRINT"YOU HAVE TEN
TORPEDOES"
65 PRINT TAB(27) "GOOD LUCK"
70 INPUT"PRESS ENTER TO
BEGIN";AS:GOTO 20
80 DATA 1, 2, 3, 4, 5, 6, 7, 8, 406, 409,
412, 415, 418, 421, 424, 427, 470,
473, 476, 479, 482, 485, 488, 491,
534, 537, 540, 543, 546, 549, 552,
555, 598, 601, 604, 607, 610, 613,
616, 619, 662, 665, 668, 671, 674,
677, 680, 683, 726
90 DATA 729, 732, 735, 738, 741, 744,
747, 790, 793, 796, 799, 802, 805,
808, 811, 854, 857, 860, 863, 866,
869, 872, 875
    
```



# TRS-80™ CLASSROOM



### THE BASIC LANGUAGE #1

This is the first of a series of articles designed for the beginner.

You should read the pamphlet "RADIO SHACK INFORMATION GUIDE FOR NEW COMPUTER OWNERS." This will familiarize you with the basic capabilities of a microcomputer, and discuss several things you should be aware of in locating and using your TRS-80.

Your computer uses a "volatile" memory, which simply means that if the power goes off, anything you have in memory will be lost. If you are in an area which experiences power failures on a frequent basis, you should plan on making frequent copies of programs and data. It is easier to continue from the copy you made an hour ago, than to have to start all over again.

Follow the instructions given in the LEVEL I USERS MANUAL for hooking the computer system together. This manual is included with both Level I and Level II computers, so we will use it as our basic reference.

The only exception to the instructions is the information about the cassette recorder. With the recorder are new instructions for its use. Hook the recorder up to the computer using the instructions in the manual, then use the recorder according to the instructions which came with it.

At this point you should have the computer hooked up, turned on, and it should be waiting for you. On a Level I computer you should see:

**READY**

>

On a Level II computer you should see:

**MEMORY SIZE?**

Press the white ENTER key. You will see:

### RADIO SHACK LEVEL II BASIC READY

>

added to the screen.

PUSH the RESET button. Most people can push this with a little finger, otherwise you may want to keep a pencil handy. The only thing that should happen is that another READY and > should appear. Anytime you press the reset button this is the indication you can expect.

The most prominent feature is the WHITE key labeled ENTER. This key is used to tell the computer you are ready for it to do something. Type the following EXACTLY as it appears:

**PRINT"HELLO I AM YOUR TRS-80!"**

When you have finished, PRESS the ENTER key. Notice that the quote marks were not printed. The keyboard layout closely follows that of a regular typewriter.

What you should do now is PLAY. By that we mean push keys, find out what happens. Use the example above and make the computer "talk" to you by substituting phrases between the quote marks. How long can a line be? Which characters can you print and which do not seem to do anything?

This is the end of column #1. In column #2 we will begin looking at BASIC. The "course" will use LEVEL I BASIC INSTRUCTION COURSE (26-2003 \$12.95) and LEVEL II BASIC INSTRUCTION COURSE PART I (26-2005 \$14.95). These cassette based courses are virtually identical and we WILL assume that you have a copy appropriate to your computer.

### THE BASIC LANGUAGE #100

No you have not missed 99 lessons, we

are starting the numbering from 100 for our INTERMEDIATE level course. In this column we will assume that you have at least a 16K Level II TRS-80 and have some BASIC programming knowledge.

Using the EDIT command

The EDIT command in Level II is a very powerful feature of your TRS-80. We will begin to examine the power of EDIT in this column.

If you have a copy of Level II BASIC Part II, look at the first lesson. It talks about EDIT. If you do not have a copy of the course, read the Level II manual Chapter 9. This will give you an idea of what can be done.

The idea of EDIT is to give you a method of changing program lines without having to retype them. Consider the line:

**10 THIS IS TO BE PRINTED**

It will not work, we need a PRINT statement, and quote marks. What do we need to do to this line to make it correct?

We need to INSERT the PRINT command and a quote mark, move to the end of the line and add a quote mark. The EDIT commands to do this are:

**EDIT 10**

I (THIS WILL NOT BE PRINTED)

?"

SHIFT UP ARROW (NOT PRINTED)

X

" (NOT PRINTED)

<ENTER>

What we did was tell the TRS-80 to enter the EDIT mode for line 10, Insert '?"', leave the insert mode, move to the end of the line and insert ' " '.

(Continued on page 4)

# Radio Shack

COMPUTER MERCHANDISING  
700 ONE TANDY CENTER  
FORT WORTH, TEXAS 76102

IF UNDELIVERABLE DO NOT RETURN

## TRSDOS 2.3 (Cont.)

TRSDOS 2.3 includes a slight modification which improves operation in three areas:

1. corrects intermittent disk input output (I/O) errors caused when a sector ID was overwritten.
2. reduces SOURCE and DESTINATION DISK READ ERRORS.
3. TEST2/BAS now re-enables the line printer after completion.

## LISTER/BAS 2.0 (Cont.)

```
670 GOSUB 700
680 RETURN
700 IF PEEK(16425)>62 THEN
  LPRINT CHR$(12):GOSUB500
710 RETURN
997 '
998 ' *** PRINT DASHED LINES FOR
  PERFORATIONS ***
999 '
1000 LPRINT STRING$(WD,"-"):
  GOSUB 3000: RETURN
1997 '
1998 ' *** PRINT HEADING AND PAGE
  NUMBER ***
1999 '
2000 LPRINT TAB(10);LEFT$(TLS
  +STRING$(30,32),30);" ";
  DT$;" ";
2010 PG=PG+1:LPRINT USING "
  PAGE ###";PG:LPRINT TAB
  (10);STRING$(WD-10,"=")
2997 '
2998 ' *** PRINT TWO BLANK LINES ***
2999 '
3000 LPRINT " ":LPRINT " ":RETURN
3997 '
3998 ' *** ERROR TRAPPING ***
3999 '
4000 IF ERR/2+1=54 THEN PRINT"
  FILE NOT FOUND":RESUME 50
4010 IF ERR/2+1=65 THEN PRINT"
  BAD FILE NAME ":RESUME 50
4020 PRINT:PRINT" ERROR #";ERR/
  2+1;"IN";ERL:STOP
4100 RESUME
```

## TRS-80 Classroom (Cont.)

There are three different Insert commands:

- I — start inserting here move everything to the right.
- H — drop everything to the right of this position and begin adding new material.
- X — move to the end of the current line and begin adding to it.

Once you are in one of these Insert commands, you can get out by using SHIFT UP ARROW.

Be careful. When you first enter the EDIT mode, or complete a subcommand, the computer is looking for a command. If we had started typing PRINT, the computer would have ignored the PR as improper commands, used the I to enter the Insert mode, and then inserted NT. Not at all what we want. If you use a little forethought, and refer to Chapter 9 frequently, you will begin to use the commands easily and efficiently.

More on EDIT subcommands in the next issue.

## Renumber Program Lines

Frustrated because you want to merge two cassette programs but they have overlapping line numbers? It is 11 PM your time and all the Radio Shack stores are closed?

John C. Miller of New York felt that some of you would be as frustrated as he was, he suggests you enter the following line in COMMAND mode. This will immediately add 32000 to all of your line numbers. (It will NOT update GOTO, GOSUB, THEN or ELSE statements, so you will have to do this yourself.) The line is:

```
P = 17129:FOR L = 1 TO 9000:IF
PEEK(P+1)> 0 THEN POKE P+3,
PEEK(P+3)+125:P = PEEK(P)+256*
PEEK(P+1):NEXT
```

## User Programs & Hints (Cont.)

Second, programs which are sent in on tape or disk (specifying the system they are to be used on) are looked at and used before programs for which we receive only source listings. We recognize the additional expense to you, but the savings in time to us can be immense. If your program runs more than a few lines, please submit a working copy on tape or disk. If you want your cassette or disk returned, be sure to include proper postage.

## Model II Operation (Cont.)

If you are using your MODEL II with a line printer which can be DE-SELECTED by the computer, it will be necessary for you to re-select the printer after computer power-up.

Many MODEL II users are forgetting to use the "I" TRSDOS command EACH time they change a diskette! If you change ANY diskette in ANY drive, you must execute the "I" TRSDOS command. If you are in BASIC, simply enter SYSTEM "I" after you have changed diskettes. If you instruct an operator to change diskettes, have the program execute the "I" command. We cannot stress enough the importance of this command. Failure to use "I" will result in diskettes which have the WRONG directory, and you may write over valuable programs and data.

If you have programs with 8 character file names, AND 3 character extensions, you will need to KILL these files if you want to get rid of them. PURGE will hang up on files of this type. We will fix this shortly.

If you want to use the special function keys F1 and F2 in your programs, they are addressed using an INKEY\$ routine. When these keys are pressed, they send ASCII 01 and 02 codes respectively. Your routine might look something like this:

```
10 AS=INKEY$:IF AS=" " THEN 10
20 IF ASC(AS)=1 THEN 100
30 IF ASC(AS)=2 THEN 200
```