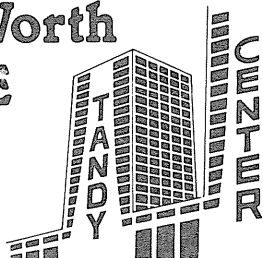


Microcomputer NEWS

THE MICROCOMPUTER NEWSLETTER PUBLISHED FOR TRS-80 OWNERS

Volume 2 Issue 5

Fort Worth SCENE



The TRS-80 Newsletter welcomes the receipt of computer programs, tips, suggestions, or other material which you would like to make available to fellow users of the TRS-80 microcomputer. However, in order for us to reprint your submission, you must specifically request that your program or other material be considered for reprinting in the newsletter and provide no notice that you retain copyrights or other exclusive rights in the material. This assures that our readers may be permitted to recopy and use your material without creating any legal hassles.

In order to satisfy the above policy, we will return any programs, or other information, which we receive that do not contain a request for reprinting in the newsletter.

NOTES ON PREVIOUS NEWSLETTERS

It has come to our attention that the Quick Printer II program on page 2 of the March/April newsletter is missing an equal sign. Line 30010 of the program should read:

```
30010 IF INP(255) = 63
      THEN ZZ$ = CHR$(15):ZZ = 2
      ELSE ZZ$ = "":ZZ = 1
```

COMPUTER SERVICES ADDRESS AND PHONE NUMBERS

New phone hours!
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1-800-772-5914 (WATS Inside Texas)
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RADIO SHACK ANNOUNCES LINE PRINTER IV

Radio Shack's new Line Printer IV adds the beauty of proportional printing to the power of our SCRIPSITTM word processing program. The Line Printer IV can be used for proportionally spaced high-density dot matrix characters with many of your SCRIPSIT applications. For right justification or tabular information, Line Printer IV is capable of producing either 80 or 132 fixed-space characters per eight inch line. Of course both upper and lower case characters are available in either printing mode.

For use with your BASIC programs, the Line Printer IV gives you true underlining, subscripts, superscripts, fixed or proportional print, enlarged characters, 80 or 132 columns in eight inches, bold face, lower case, and forward or reverse line feeds! Proportional characters vary in width from 6 dot columns (letter j) to 18 dot columns (letters M and W). Special characters available include the grave, braces, back slash, and carat. For right justification

(Continued on page 2)

MACHINE LANGUAGE SORT FOR MODEL I AND MODEL II

The following machine language version of a Shell/Metzner sort was provided by Allan Emert of Odessa, Texas. Mr. Emert provided the program for Model I, Level II and we made minor modifications to allow it to run on Model II.

To give you an idea of the speed of this routine, we compared it to the BASIC sorts which we published in the March/April Newsletter. Using the same type strings, this is how the routines compared (times given in seconds):

| Number of Strings | Best BASIC | MACHINE LANGUAGE | |
|-------------------|------------|------------------|--------|
| | | Mod I | Mod II |
| 10 | 2 | 1 | 1 |
| 50 | 17 | 1 | 1 |
| 100 | 50 | 1 | 1 |
| 500 | 978 | 4 | 2 |
| 1000 | 2560 | 9 | 4 |

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Line Printer IV

(From page 1)

spaces as narrow as a single dot column are available. For the technically minded, a dot column is 0.00666 inches in width, giving 150 dot columns to the inch. Maximum line length is 1185 dot columns. Back-

space control, up to 126 dot positions, is included to make boldface and overprinting simple.

The incredible Line Printer IV is available now from your local Radio Shack Store or dealer. Stock number 26-1159 for only \$999.00.

Software and Manual "fixes," Revisions, and Enhancements

A procedure for ordering corrected or updated versions of programs and manuals has been instituted. You can now order these replacements from your local Radio Shack store or dealer. The store will need verification that you are bona fide owner of the product in question. Please follow these steps:

1. Bring your sales receipt or other proof that you are an owner of the product in question.
2. Place an order for replacement with the store.
3. When the replacement arrives, pick it up at the store. Some items will be free of charge, others will have a nominal fee.

The following items are currently available:

| Cat. No. | Item | Retail \$ -0- |
|----------|---|------------------|
| 700-2001 | Version 1.2 of Model I Accounts Payable (26-1554) | \$ -0- |
| 700-2002 | Version 1.4 of Model I Accounts Receivable (26-1555) | -0- |
| 700-3001 | Improved manual for 26-1180, Voice Synthesizer—including our new 1000 word dictionary and improved programming hints. | 1.50 |
| 700-3002 | Model II Manual Update Package (For purchasers of 26-4920 Manual Only. Model II owners received a copy) | 7.50 |
| 700-3003 | Earned Income Credit version of Model I Payroll (26-1556) includes 3 diskettes and a new manual. | 50.00 |
| 700-3004 | Model I TRSDOS manual. (Latest printed pages for 26-2104) | 5.00 |
| 700-6001 | Model I Business Mailing List (26-1558). Exchange item for owners of the original 26-1551 Mailing List | 60.00 |

Other numbers will be added as necessary.

Sort for Model I and Model II (from page 1)

For 16K Level II:

```

1000 REM LIST FOR 16K (ENTRY = &H7F00)
1010 REM MEMORY SIZE = 32512
1020 DATA 205, 127, 10, 94, 35, 86, 237, 83, 19, 127, 35, 94, 35, 86, 237, 83
1030 DATA 213, 127, 33, 0, 0, 34, 211, 127, 237, 91, 211, 127, 203, 59, 175
1040 DATA 203, 58, 48, 2, 203, 251, 237, 83, 211, 127, 122, 179, 200, 42, 19
1050 DATA 127, 237, 82, 34, 207, 127, 33, 0, 0, 34, 205, 127, 42, 205, 127, 34
1060 DATA 203, 127, 42, 203, 127, 237, 91, 211, 127, 25, 34, 209, 127, 235, 33
1070 DATA 0, 0, 25, 25, 25, 229, 237, 91, 203, 127, 33, 0, 0, 25, 25, 25, 237
1080 DATA 75, 213, 127, 9, 235, 225, 9, 229, 213, 14, 0, 126, 71, 26, 184, 48
1090 DATA 3, 14, 1, 71, 175, 176, 40, 25, 197, 19, 35, 78, 35, 70, 197, 225
1100 DATA 235, 78, 35, 70, 197, 225, 193, 26, 150, 56, 10, 32, 39, 19, 35, 16
1110 DATA 246, 203, 65, 32, 31, 209, 225, 6, 3, 78, 235, 126, 113, 235, 119
1120 DATA 35, 19, 16, 246, 42, 211, 127, 235, 42, 203, 127, 175, 237, 82, 34
1130 DATA 203, 127, 48, 144, 24, 2, 209, 225, 42, 205, 127, 17, 1, 0, 175, 25
1140 DATA 34, 205, 127, 237, 91, 207, 127, 237, 82, 218, 58, 127, 195, 24, 127
1200 N=0
1210 FOR I=1 TO 203
1220   READ A
1230   N=N + A
1240   POKE I+32511, A
1250 NEXT
1260 IF N <> 22393
    THEN PRINT "ERROR IN DATA":
    END

```

WP-50 Daisy Wheel Delivery Delays

Please note that delivery of the WP-50 Daisy Wheel Printer (26-1157) is running about 120 days behind orders.

Programming Tip 80-2

For Model I owners who do not have a

For Your Information . . .

The following information is provided to help eliminate "concern" that because a recent Level II machine does not behave exactly the same as an earlier one, that one of them is "mal-functioning."

We are currently shipping 26-1054, 26-1056 and 26-1120 (Model I Level IIs and Level II Kits) with a new ROM. There are a few differences between this ROM and what we have used in the past:

1. The power-up query is: MEM SIZE?
2. The BASIC sign-on message is: R/S L2 BASIC
3. The amount of free memory space available was reduced by two (2) bytes. With a 16K machine, no memory protected, ?MEM will give 15570.
4. You can CLOAD and CLOAD? only from tape drive #1. You may not specify a tape unit when using these commands. The Level II manual indicates that these operations can be done using either of the two data recorders when you have an Expansion Interface. You can still CSAVE# - n and save and input data from both recorders.
5. You can now output control characters. Press <SHIFT> then <down-arrow>. (Continued on page 4)

This program will load the machine language sort routine into high memory.

The following program uses this routine, and demonstrates the speed of the sort:

```

10 CLS
20 CLEAR 10000
30 POKE 16526,0: POKE 16527,127
40 DEFINT A-Z
50 DIM A$(750), X(2): Z=0
60 GOSUB 1000
69 REM GENERATE A LIST OF
   ITEMS
70 INPUT "NUMBER OF ITEMS <750
   ";N

```

(Continued on page 3)

CTR-80, and are tired of pulling the plug to reposition the tape:

```

100 OUT 255.4
110 INPUT "PRESS ENTER TO STOP";
   A$

```

Line 100 lets you position the tape, line 110 returns control to BASIC.

Radio Shack Gives You Three More Reasons To Move Up To Word Processing



1 Proportional Spacing

Radio Shack's new Line Printer IV offers you maximum features for a minimum investment. The proportionally spaced, high-density dot matrix characters add an extra touch of elegance to your work, and can be used with many SCRIPSIT™ applications. Also available are monospaced characters of 10 and 16.7 characters per inch, giving you a choice of 80 or 132 characters per eight inch print line. Double width characters are available in all three styles. The Line Printer IV is also capable of true underlining, lower case, subscripting, superscripting, bold face, and forward or reverse linefeeds. (Note: You must preset the Line Printer IV to a character style, other than the default fixed pitch, in BASIC and then go to SCRIPSIT. Character size or style CANNOT be changed by SCRIPSIT.)

Line Printer IV Cat. No. 26-1159 \$999.00
 Line Printer II Interface Cable (for use without
 Expansion Interface) Cat. No. 26-1416 \$ 59.00

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Complete System Only
2050⁹⁵

2 Lower Case Modification

Radio Shack's Lowercase Modification allows your TRS-80 to display lowercase characters—a true advantage for word processing applications. The lowercase characters look good, featuring true descenders for those characters which should extend below the line. Just bring your keyboard in to your local Radio Shack store, dealer, or computer center. (NOTE: Some Non-Radio Shack programs may not work properly with this kit installed. SCRIPSIT does not require this kit.)

Cat. No. 26-1104 \$59.00
 Plus Installation

3 Tape SCRIPSIT™

Tape SCRIPSIT gives you full word processing power without the expense of an expansion interface and a disk drive. Your text files are stored on convenient cassette tapes using your existing data recorder. Tape SCRIPSIT includes versions for use with or without lower case, as well as our unique six lesson audio course and manual. Requires 16K Level II. Cat. No. 26-1505 \$69.95

TRS-80TM MAILGRAM* Software

Radio Shack now offers this program to allow you to send MAILGRAM messages directly from your TRS-80 microcomputer. Messages can be sent electronically from your TRS-80 to a post office near your addressee via Western Union Electronic Mail, Inc. for delivery with the next business day's mail. This program provides full message editing capability and storage of frequently used addresses and texts, for quick access, in the Western Union Electronic Mail, Inc. system. To take advantage of this service, you'll need a 16K Level II TRS-80, Expansion Interface, RS-232-C Board and Telephone Interface.

Cat. No. 26-1564 **\$39.95**

(An application for a MAILGRAM Service Agreement must be submitted to Western Union Electronic Mail, Inc. MAILGRAM message charges are specified in this Service Agreement.)

*MAILGRAM is a registered trademark of The Western Union Telegraph Company.

Contractors . . .

Concrete Take-Off

can lighten your work load.

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Single Disk System— 39K Bytes of Information

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Any type of information can be stored, sorted, retrieved, displayed and printed quickly and easily. Microfiles allows you to custom-tailor information to fit your exact requirements.

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Real Estate IV brings you the power of the Ellwood formulas. With four easy to use programs— Ellwood Analysis, Overall Rate, Ellwood Graphs and Sensitivity Analysis — a wealth of information is readily available.

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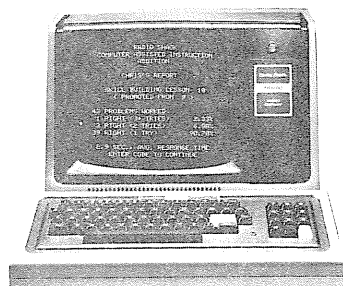
- Ellwood Mortgage Coefficients
- Mortgage Constants
- The Basic Capitalization Rate ("little r").
- The Composite Overall Rate ("Big R").
- Cash flow rates
- Breakeven occupancy requirements
- Equity Yields for various mortgage combinations.

Requires 16K Level II TRS-80.

Cat. No. 26-1574 **\$29.95**

COMPUTER-ASSISTED INSTRUCTION

Radio Shack Announces its K-8 Math Program for Schools!

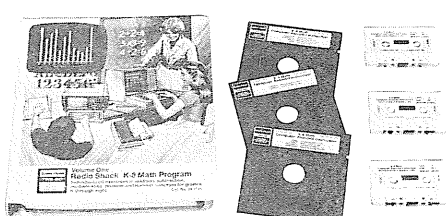


FEATURES:

- Program material is supplied on BOTH cassettes and diskettes.
- Reinforcement messages keyed to correct and incorrect answers.
- Instruction is individualized.
- A comprehensive reporting function.
- Complete teacher manual including curriculum content summaries.

The Radio Shack K-8 Math Program is designed to supplement regular classroom instruction in fundamental math skills for grades Kindergarten through eighth grade. It is an excellent aid in drilling students on new concepts as they are introduced to a class. Part One of this program is a series of computer programs containing skill-building exercises and a testing mode in numeration, addition and subtraction concepts (for use in grades K through 3). Part Two contains skill-building exercises, a testing mode, and a placement mode for addition, subtraction, multiplication and division (for use in grades 1 through 8).

The system requires a minimum of one TRS-80 16K Level II microcomputer system. It is also ideal for use with the Radio Shack Network I System.



26-1715 \$199.00

COMPUTER EDUCATION SERIES

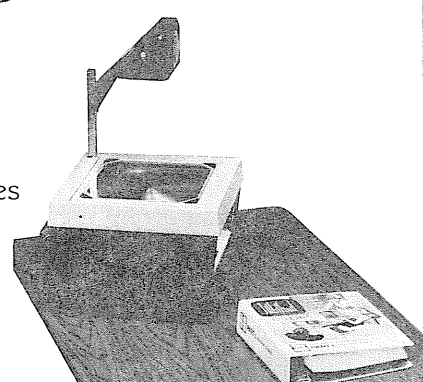
PART I: Introduction to BASIC

- Complete Computer Education Course
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- Taught in Radio Shack Computer Centers
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Part I: Introduction to BASIC is a complete classroom teaching package that introduces the secondary student to the computer and the BASIC language.

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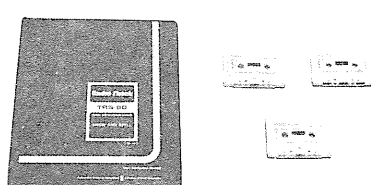
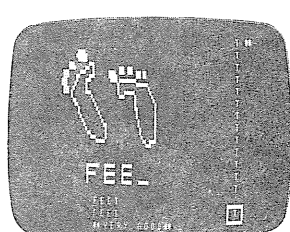
Show and Spell

The materials provided for drill in recognition and spelling of:

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Show and Spell is designed to assist your children (preschool through second grade) in developing fundamental spelling skills. The program requires a minimum 4K Level II system.



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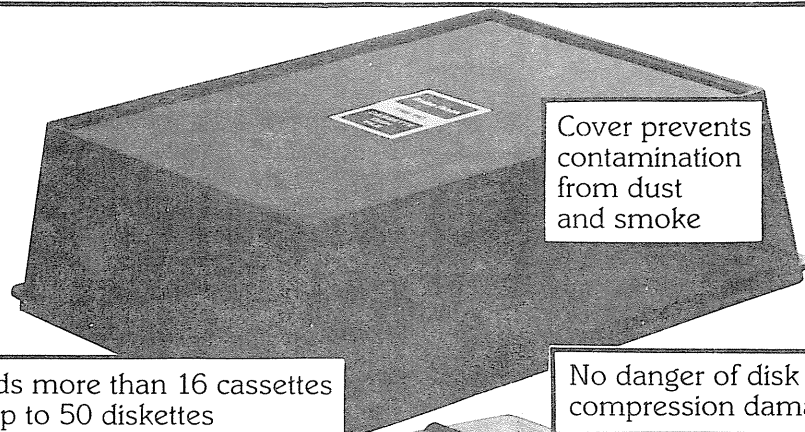
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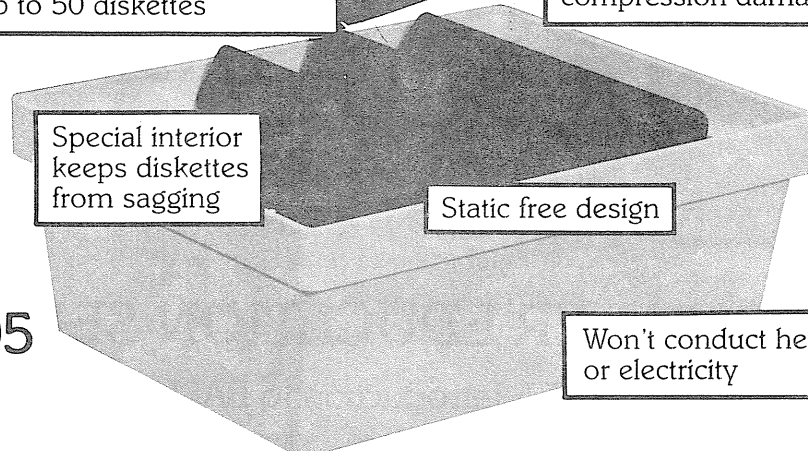
19⁹⁵



Cover prevents contamination from dust and smoke

Holds more than 16 cassettes or up to 50 diskettes

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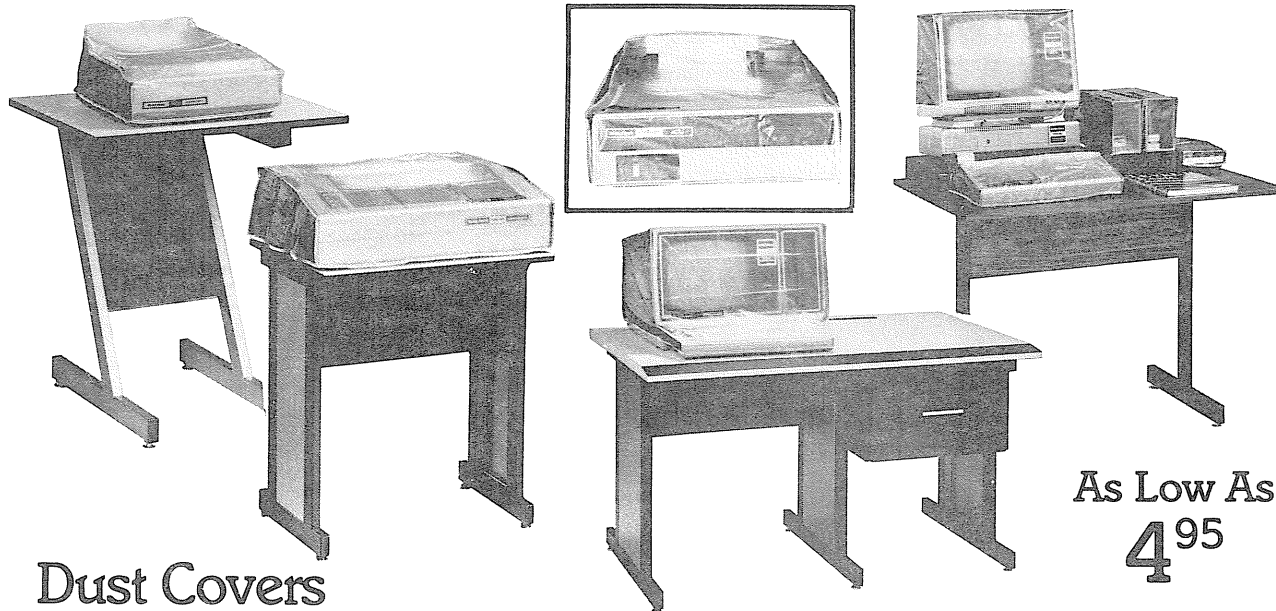


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Dust Covers

Model I System Cover . . (26-501) \$7.95
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Model II System Desk (26-4301) \$369.00
Model II Printer Stand (26-4302) \$149.00

As Low As
4⁹⁵

Machine Language Sort

(from page 2)

```

80 FOR I=0 TO N-1
90   AS(I)=STRING$(RND(30),
      RND(26)+64)
140   PRINT I; AS(I),
150 NEXT I
160 INPUT"PRESS ENTER TO START
    SORT"; ZZ
170 X(0)=N
180 X(1)=VARPTR(AS(0))
190 Z=USR(VARPTR(X(0)))
200 FOR I=0 TO N-1
210   PRINT I; AS(I),
220 NEXT I
230 INPUT"PRESS ENTER TO
    REPEAT";ZZ
240 CLS:GOTO 70
1310 RETURN
    
```

This listing shows the proper format for use with 16K Level II BASIC.

The program can be run in 32K or 48K by "relocating" it. To relocate the program, change ALL occurrences of 127 (except the first one) in the DATA statements as indicated. There are 23 occurrences which must be changed.

For 32K, change to 191.

For 48K, change to 255.

Memory sizes are:

16K—32512
 32K—48895
 48K—65279

Level II USR entry points are:

16K—POKE 16526,0: POKE 16527,127
 32K—POKE 16526,0: POKE 16527,191
 48K—POKE 16526,0: POKE 16527,255

Disk BASIC DEFUSR entry points are:

16K—&H7F00
 32K—&HBF00
 48K—&HFF00

For 32K make the following additional changes:

1240 POKE I-16641, A
 1260 IF N <> 23865 THEN END

If you are using a 48K system make these additional changes:

1240 POKE I-257, A
 1260 IF N <> 25337 THEN END

This program should allow you to "play" with this sort routine. Notice that it only sorts literal (alphanumeric) data items which have been stored in

a single dimension array (A\$). When the sort is finished, the sorted items are still in the array A\$. The size of the array which can be sorted is limited only by the amount of memory you have. For 32K and above, you can easily increase array size to 1500.

In addition to the single dimension literal array A\$(n), array X(2) should be dimensioned, and Z set to zero before the USR routine is called. One further caution is to avoid placing any additional statements between lines 170 and 190 in the demonstration program. If you assign values after you have assigned X(0) and X(1) and before you call the USR, the sort will not work because the pointer values will have changed.

MODEL II VERSION

For Model II, our setup procedure is somewhat different. Since we do not have a POKE command, we will use the DEBUG facility under TRSDOS to enter the machine language sort. Once you have entered the routine, and saved it onto disk, everything, including subsequent uses of the machine language routine, will be handled from your BASIC program.

The following information is given for a 64K Model II:

Using the DEBUG utility as described in the Model II TRSDOS manual, we need to modify memory beginning at location F000.

Carefully enter the following contents to memory:

```

00 00 00 5E 23 56 ED 53
13 F0 23 5E 23 56 ED 53
D5 F0 21 00 00 22 D3 F0
ED 5B D3 F0 CB 3B AF CB
3A 30 02 CB FB ED 53 D3
F0 7A B3 C8 2A 13 F0 ED
52 22 CF F0 21 00 00 22
CD F0 2A CD F0 22 CB F0
2A CB F0 ED 5B D3 F0 19
22 D1 F0 EB 21 00 00 19
19 19 E5 ED 5B CB F0 21
00 00 19 19 19 ED 4B D5
F0 09 EB E1 09 E5 D5 0E
00 7E 47 1A B8 30 03 0E
01 47 AF B0 28 19 C5 13
23 4E 23 46 C5 E1 EB 4E
    
```

Check all of the entries for accuracy. If you have made a mistake, use the arrow keys to move the cursor to the location of the error, then press the correct key. When all of the entries are correct, press the F2 key.

Now type M then F080. This will move the display so you can enter the rest of the program.

Press the F1 key and make the following entries:

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 23 | 46 | C5 | E1 | C1 | 1A | 96 | 38 |
| 0A | 20 | 27 | 13 | 23 | 10 | F6 | CB |
| 41 | 20 | 1F | D1 | E1 | 06 | 03 | 4E |
| EB | 7E | 71 | EB | 77 | 23 | 13 | 10 |
| F6 | 2A | D3 | F0 | EB | 2A | CB | F0 |
| AF | ED | 52 | 22 | CB | F0 | 30 | 90 |
| 18 | 02 | D1 | E1 | 2A | CD | F0 | 11 |
| 01 | 00 | AF | 19 | 22 | CD | F0 | ED |
| 5B | CF | F0 | ED | 52 | DA | 3A | F0 |
| C3 | 18 | F0 | 00 | 00 | 00 | 00 | 00 |
| 21 | 00 | F0 | E5 | 2A | 03 | 28 | E9 |

Ensure that all entries are correct then press F2.

Our machine language routine is now in memory, and we need to transfer a copy to disk. Press S to return to TRSDOS, then enter DEBUG OFF

Now enter the following:

```

DUMP SORT/CIM START=F000,
END=F0E0, TRA=F0D0,
RORT=R
    
```

This will dump a copy of the routine to Disk under the filename SORT/CIM.

Enter BASIC using the following:

BASIC -M:61439

This loads BASIC and protects memory above 61439 for the machine language routine. In BASIC you can use the following program to see how the sort works:

```

10 CLS
20 T$="": T1$=""
30 CLEAR 23000
40 DEFUSR=&HF0D0
50 DEFINT A-Z
60 DIM A$(1500), X(2)
70 Z=0
80 SYSTEM"LOAD SORT/CIM"
90 INPUT"NUMBER OF ITEMS <1500";N
100 FOR I=0 TO N-1
110 AS(I)=" "
120 AS(I)=STRING$(RND(30), RND(26)+64)
130 PRINT I; AS(I),
140 NEXT I
150 INPUT"PRESS ENTER TO START SORT";
    ZZ
160 T1$=TIMES
170 X(0)=N: X(1)=VARPTR(AS(0))
180 Z=USR(VARPTR(X(0)))
190 T$=TIMES
200 FOR I=0 TO N-1
210 PRINT I; AS(I),
220 NEXT I
230 PRINT
240 PRINT T$, T1$
250 INPUT"PRESS ENTER TO REPEAT"; ZZ
260 GOTO 10
    
```

IF UNDELIVERABLE DO NOT RETURN

MODEL II PATCHES FOR TRSDOS 1.2

Model II TRSDOS 1.2 has provisions for minor modification via the PATCH command (Page 3/28 TRSDOS Ref. Man.). The following patches may be made IF you need them. We do not suggest PATCHing TRSDOS on a Diskette with Application Software programs which operate without problems.

PATCHES:

1. Problem: BASIC LPRINTS 131 characters on a line, and then LPRINTS the 132nd character at the beginning of the following line.

Patch: PATCH BASIC A=56BF F=CCD256 C=000000

2. Problem: When using the Communication drivers (including Terminal), if a parity error occurs (indicated by a reverse video "P"), the parity error indicator does not reset. All following characters show parity errors even when none have occurred.

Patch: PATCH SYSCA/SYS A=724F F=E660 C=E670 for 32K version.
PATCH SYSCB/SYS A=F24F F=E660 C=E670 for 64K version.

3. Problem: The "Terminal" program's "G" command cannot load a file with LRL=256. There is no indication that a loading error has occurred. However, if you examine the RAM buffer, either none, or only fragments of your file will have been copied to RAM.

Patch: PATCH TERMINAL A=35E7 F=21DD3B016400 C=21DD3D010001

4. Problem: When the clock is being displayed on the video, the video screen will not always scroll (move up one line). Instead the next line of data will simply over-write the line which was at the bottom of the video.

Patch: PATCH IODVRS/SYS A=0676 F=00 C=76

5. Problem: If the printer is off-line when certain printer commands are executed in TRSDOS or BASIC, the computer may hang-up. The normal action should be to issue an "ERROR 45" in TRSDOS or an "I/O Error" in BASIC.

Patch: PATCH IODVRS/SYS A=0F8C F=3E2D C=F62D

6. Problem: During a Single Drive, Multi-diskette Copy, a problem can appear when the "MOUNT DESTINATION DISKETTE" message appears. If the problem occurs, you will not be able to go past this message to complete the COPY. The following PATCHes will prevent this problem from happening.

Patch: There are four separate patches which must be applied.

PATCH SYS11/SYS A=2BCC F=CD5F29 C=CDA52D
PATCH SYS11/SYS A=2CD2 F=CD5F29 C=CDA52D
PATCH SYS11/SYS A=2DA5 F=FFFFFFFFFFFFFFFFFFFF
C=21A92846230E0D3E09CF
PATCH SYS11/SYS A=2DAF F=FFFFFFFFFFFFFFFFFFFF
C=3E01CF3E04CF20FBC9

For Your Information . . .

(from page 2)

This combination is "control" while you have both keys pressed, press the alphabetic key (A-Z) to send the desired control code. For example:

<SHIFT><down-arrow>Z

is the sequence for control-Z.

6. Do NOT use the KBFIX keyboard driver with these keyboards. The driver is NOT needed and will not work properly.
7. The cassette load modification for the keyboard is not needed with the new ROM and will not be installed.
8. This ROM is not interchangeable with the old ROM. A complete NEW Level II kit (26-1120 \$150.00) must be installed to use this ROM. This kit is only available installed by the service centers. (Installation now extra.)
9. Some older tapes, specifically:

26-1146 RS-232 Comm. Pack
26-1181 VOXBOX Tapes
26-1504 Tape Payroll
26-1707 Level II Algebra I
26-1802 Quick Watson
26-1803 Blackjack/Backgammon
26-1901 MicroChess
26-1906 Invasion Force
26-1907 Checkers 80
26-2002 Editor/Assembler

may not load properly using the new ROM. The problem has to do with the timing of the material on the tapes. If you get a tape which does not load, or which loads with the old ROM, but not the new one, you can either have someone make a copy from an old-ROM TRS-80 (this will correct the timing problem), or request your local Radio Shack to replace it.

10. You can now perform multiple PRINT @s using a single PRINT statement. For example:

PRINT@ 10,"A",@ 74,"B",@ 138,"C"

will not work with the old ROM, but will work with the new one.

11. Under Disk BASIC, you can now specify a file name when using CLOAD. In the past, under Disk BASIC, you could not CLOAD using a filename.