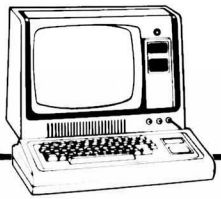
Radio Shack® TRS-80™ Software Library

Businesses of all sizes can computerize various operations with TRS-80, the low-cost, *expandable* microcomputer from Radio Shack!



RADIO SHACK TRS-80™
SOFTWARE LIBRARY

General Ledger I

Cat. No. 26-1552

Suggested Retail Price (may vary at individual stores and dealers) $99.95

Description

Radio Shack's General Ledger I is an accounting system designed specifically to post and maintain the general ledger of a small business. GL-1 is an ideal place for you to start realizing the benefits of computerized accounting previously available only to very large companies. You enter all income and expense items, and "GL-1" stores related records to produce your monthly Balance Sheet and Income (or "Profit & Loss") Statement. Radio Shack's GL-1 lets you use your current account names. A unique input routine minimizes operator errors. It has automatic out-of-balance detection and well defined audit trails.

Format

Diskette only. Binder includes one program disk and one blank disk for data storage, plus manual and "Mini-Book" for quick reference.

Hardware Required

Radio Shack's "32K Business System" including . . .

- Level II, 16K TRS-80
- Expansion Interface with 16K RAM
- TRS-80 Line Printer and Cable
- 2 Mini-Disk Drives

Limitations

Number of Accounts — 100 (Account numbers 1001-9998)
Number of Entries — 510 per Posting Session
— 1,830 per Month
Numeric Accuracy — 16-Digit Internal Accuracy
Printing Capacity — Up to $99,999,999.99

Reports Generated

General Ledger Trial Balance
Balance Sheet
Income Statement
Monthly Transaction Report — Acct. # Sequence
Monthly Transaction Report — Entry Sequence
Posting Summary — Document # Sequence
Posting Summary — Account # Sequence

Detailed Description

General Ledger I doesn't expect you to adapt your business to a preset chart of accounts . . . it lets you define up to 100 of your own. You set up the exact account names you need, using 4-digit account numbers. (Our Instruction Manual even includes a sample you can go through if you like, before starting on your own accounts.) All of the initialization of your accounts can be done from a copy of your current General Ledger Trial Balance, which your accountant can provide. Little if any knowledge of accounting will be required.

Each item you post is assigned a document number, producing an easy-to-follow "Audit Trail." At the end of each posting session, you receive two printed posting summaries. The first shows each transaction in document-number sequence, and the second shows the net effect of the posted transactions on each account . . . in account number sequence. If anything gets out-of-balance, you will be told at the bottom of the page.

Two Monthly Transaction Reports represent your "Detail Journal" and are usually run after all posting for the month is complete. All entries are grouped in account-number sequence on one report so you can trace just what happened to any account during the month. The second transaction report details all posting in the order in which it occurred, or in "Entry Sequence."

Your General Ledger Trial Balance shows the current balance in each of your Asset, Liability, Income and Expense accounts, plus the previous month and current month's activity.

The Income Statement is your Profit and Loss statement for any given month or period, and is normally run only at the end of a period. It gives each item as a dollar amount, and as a percentage of Gross Sales for both the current month's figures as well as year to date.

Your Balance Sheet, of course, lists Assets, Liabilities and Capital, and again checks to be sure all accounts are in proper balance.

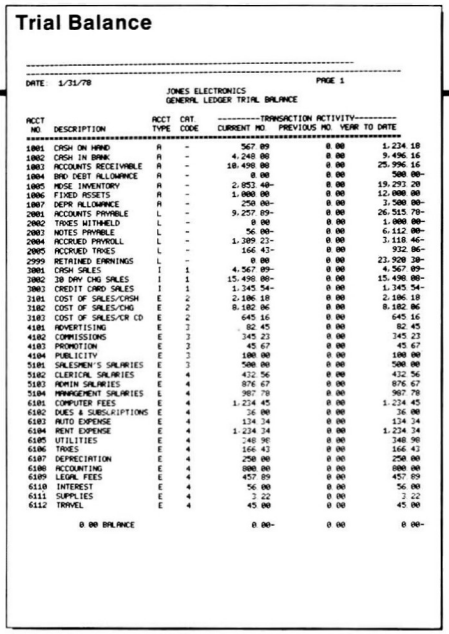
In the back of the extensive manual is a complete listing of each program, in case you should want to modify some portion of the program(s) to suit your own requirements.

Radio Shack's exclusive "Mini-Book" is a thumbnail outline of the key operating factors, to get you in operation quickly. The Mini-Book tells you what to do while the large manual also tells you why and supplies answers to your questions in greater detail.

Radio Shack's General Ledger I has been designed to satisfy the normal requirements of a small business, and to do it in a manner that lets GL-1 adapt to your business rather than expecting your business to adapt to the program. Used properly, it should save you time, and, of course, the human errors which are expected in a hand-posted system. By doing this work "in house" you know at all times what is happening, and you retain more control over the destiny of your business. In other words, you can have the increased control and efficiency of computerized accounting which has up until now been the exclusive property of "Big Business."

Sample Reports

Trial Balance

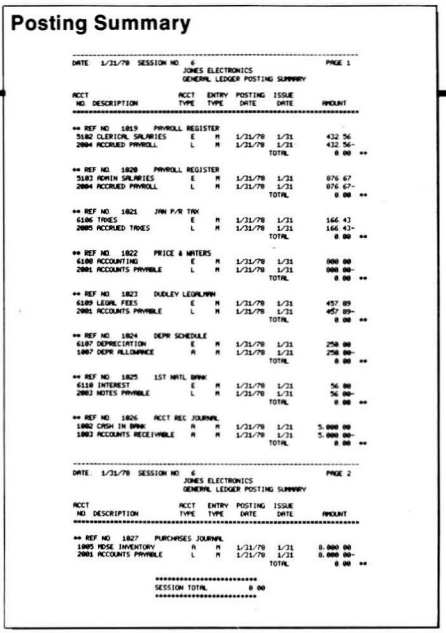


DATE: 1/31/78 PAGE 1

JONES ELECTRONICS
GENERAL LEDGER TRIAL BALANCE

ACCT NO	DESCRIPTION	ACCT TYPE	CAT CODE	TRANSACTION ACTIVITY CURRENT MO	PREVIOUS MO	YEAR TO DATE
1001	CASH ON HAND	A	-	567 89	0 00	1,234 10
1002	CASH IN BANK	A	-	4,248 00	0 00	9,496 16
1003	ACCOUNTS RECEIVABLE	A	-	10,498 00	0 00	25,996 16
1004	BAD DEBT ALLOWANCE	A	-	0 00	0 00	500 00-
1005	MDSE INVENTORY	A	-	2,853 40-	0 00	19,293 20
1006	FIXED ASSETS	A	-	1,000 00	0 00	12,000 00
1007	DEPR ALLOWANCE	A	-	250 00-	0 00	3,500 00-
2001	ACCOUNTS PAYABLE	L	-	9,257 89-	0 00	26,515 70-
2002	TAXES WITHHELD	L	-	0 00	0 00	1,000 00-
2003	NOTES PAYABLE	L	-	56 00-	0 00	6,112 00-
2004	ACCRUED PAYROLL	L	-	1,389 23-	0 00	3,118 46-
2005	ACCRUED TAXES	L	-	166 43-	0 00	932 86-
2999	RETAINED EARNINGS	L	-	0 00	0 00	23,920 30-
3001	CASH SALES	I	1	4,567 89-	0 00	4,567 89-
3002	30 DAY CHG SALES	I	1	15,498 00-	0 00	15,498 00-
3003	CREDIT CARD SALES	I	1	1,345 54-	0 00	1,345 54-
3101	COST OF SALES/CASH	E	2	2,106 18	0 00	2,106 18
3102	COST OF SALES/CHG	E	2	8,182 86	0 00	8,182 86
3103	COST OF SALES/CR CD	E	2	645 16	0 00	645 16
4101	ADVERTISING	E	3	82 45	0 00	82 45
4102	COMMISSIONS	E	3	345 23	0 00	345 23
4103	PROMOTION	E	3	45 67	0 00	45 67
4104	PUBLICITY	E	3	100 00	0 00	100 00
5101	SALESMEN'S SALARIES	E	3	500 00	0 00	500 00
5102	CLERICAL SALARIES	E	4	432 56	0 00	432 56
5103	ADMIN SALARIES	E	4	876 67	0 00	876 67
5104	MANAGEMENT SALARIES	E	4	907 78	0 00	907 78
6101	COMPUTER FEES	E	4	1,234 45	0 00	1,234 45
6102	DUES & SUBSCRIPTIONS	E	4	36 00	0 00	36 00
6103	AUTO EXPENSE	E	4	134 34	0 00	134 34
6104	RENT EXPENSE	E	4	1,234 34	0 00	1,234 34
6105	UTILITIES	E	4	348 90	0 00	348 90
6106	TAXES	E	4	166 43	0 00	166 43
6107	DEPRECIATION	E	4	250 00	0 00	250 00
6108	ACCOUNTING	E	4	800 00	0 00	800 00
6109	LEGAL FEES	E	4	457 89	0 00	457 89
6110	INTEREST	E	4	56 00	0 00	56 00
6111	SUPPLIES	E	4	3 22	0 00	3 22
6112	TRAVEL	E	4	45 00	0 00	45 00
	0 00 BALANCE			0 00-	0 00	0 00-

Posting Summary



DATE: 1/31/78 SESSION NO. 6 PAGE 1

JONES ELECTRONICS
GENERAL LEDGER POSTING SUMMARY

ACCT NO	DESCRIPTION	ACCT TYPE	ENTRY TYPE	POSTING DATE	ISSUE DATE	AMOUNT
** REF NO. 1019 PAYROLL REGISTER						
5102	CLERICAL SALARIES	E	M	1/31/78	1/31	432 56
2004	ACCRUED PAYROLL	L	M	1/31/78	1/31	432 56-
					TOTAL	0 00 **
** REF NO. 1020 PAYROLL REGISTER						
5103	ADMIN SALARIES	E	M	1/31/78	1/31	876 67
2004	ACCRUED PAYROLL	L	M	1/31/78	1/31	876 67-
					TOTAL	0 00 **
** REF NO. 1021 JAN P/R TAX						
6106	TAXES	E	M	1/31/78	1/31	166 43
2005	ACCRUED TAXES	L	M	1/31/78	1/31	166 43-
					TOTAL	0 00 **
** REF NO. 1022 PRICE & WATERS						
6108	ACCOUNTING	E	M	1/31/78	1/31	800 00
2001	ACCOUNTS PAYABLE	L	M	1/31/78	1/31	800 00-
					TOTAL	0 00 **
** REF NO. 1023 DUDLEY LEGALMAN						
6109	LEGAL FEES	E	M	1/31/78	1/31	457 89
2001	ACCOUNTS PAYABLE	L	M	1/31/78	1/31	457 89-
					TOTAL	0 00 **
** REF NO. 1024 DEPR SCHEDULE						
6107	DEPRECIATION	E	M	1/31/78	1/31	250 00
1007	DEPR ALLOWANCE	A	M	1/31/78	1/31	250 00-
					TOTAL	0 00 **
** REF NO. 1025 1ST NATL BANK						
6110	INTEREST	E	M	1/31/78	1/31	56 00
2003	NOTES PAYABLE	L	M	1/31/78	1/31	56 00-
					TOTAL	0 00 **
** REF NO. 1026 ACCT REC JOURNAL						
1002	CASH IN BANK	A	M	1/31/78	1/31	5,000 00
1003	ACCOUNTS RECEIVABLE	A	M	1/31/78	1/31	5,000 00-
					TOTAL	0 00 **

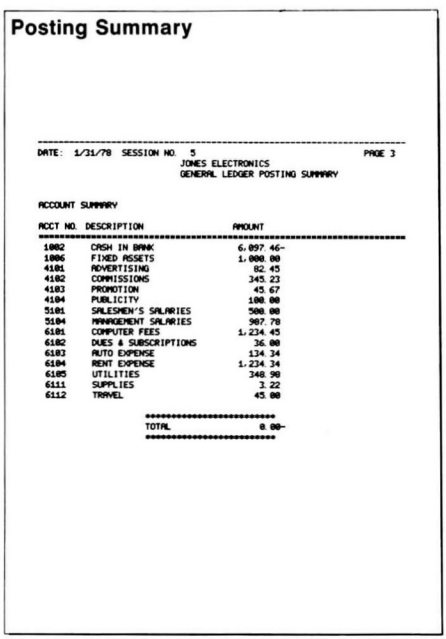
DATE: 1/31/78 SESSION NO. 6 PAGE 2

JONES ELECTRONICS
GENERAL LEDGER POSTING SUMMARY

ACCT NO	DESCRIPTION	ACCT TYPE	ENTRY TYPE	POSTING DATE	ISSUE DATE	AMOUNT
** REF NO. 1027 PURCHASES JOURNAL						
1005	MDSE INVENTORY	A	M	1/31/78	1/31	8,000 00
2001	ACCOUNTS PAYABLE	L	M	1/31/78	1/31	8,000 00-
					TOTAL	0 00 **

********** SESSION TOTAL 0 00 **********

Posting Summary



DATE: 1/31/78 SESSION NO. 5 PAGE 3

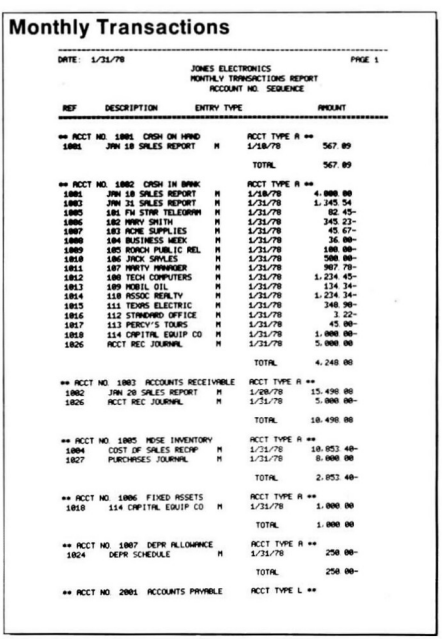
JONES ELECTRONICS
GENERAL LEDGER POSTING SUMMARY

ACCOUNT SUMMARY

ACCT NO.	DESCRIPTION	AMOUNT
1002	CASH IN BANK	6,097 46-
1006	FIXED ASSETS	1,000 00
4101	ADVERTISING	82 45
4102	COMMISSIONS	345 23
4103	PROMOTION	45 67
4104	PUBLICITY	100 00
5101	SALESMEN'S SALARIES	500 00
5104	MANAGEMENT SALARIES	907 78
6101	COMPUTER FEES	1,234 45
6102	DUES & SUBSCRIPTIONS	36 00
6103	AUTO EXPENSE	134 34
6104	RENT EXPENSE	1,234 34
6105	UTILITIES	348 90
6111	SUPPLIES	3 22
6112	TRAVEL	45 00

********** TOTAL 0 00- **********

Monthly Transactions



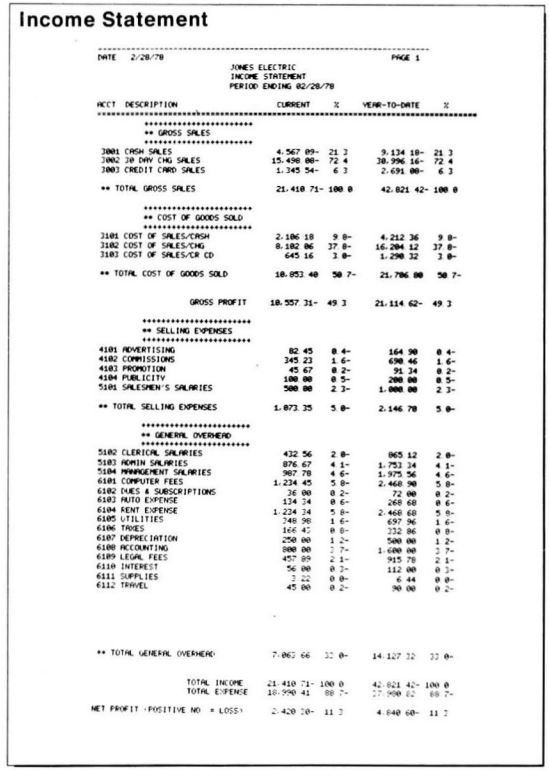
DATE: 1/31/78 PAGE 1

JONES ELECTRONICS
MONTHLY TRANSACTIONS REPORT
ACCOUNT NO. SEQUENCE

REF	DESCRIPTION	ENTRY TYPE		AMOUNT
** ACCT NO. 1001 CASH ON HAND			ACCT TYPE A **	
1001	JAN 18 SALES REPORT	M	1/18/78	567 89
			TOTAL	567 89
** ACCT NO. 1002 CASH IN BANK			ACCT TYPE A **	
1001	JAN 18 SALES REPORT	M	1/18/78	4,000 00
1003	JAN 31 SALES REPORT	M	1/31/78	1,345 54
1005	101 FW STAR TELEGRAM	M	1/31/78	82 45-
1006	102 MARY SMITH	M	1/31/78	345 23-
1007	103 ACME SUPPLIES	M	1/31/78	45 67-
1008	104 BUSINESS WEEK	M	1/31/78	36 00-
1009	105 RONCH PUBLIC REL	M	1/31/78	100 00-
1010	106 JACK SAYLES	M	1/31/78	500 00-
1011	107 MARTY MANAGER	M	1/31/78	907 78-
1012	108 TECH COMPUTERS	M	1/31/78	1,234 45-
1013	109 MOBIL OIL	M	1/31/78	134 34-
1014	110 ASSOC REALTY	M	1/31/78	1,234 34-
1015	111 TEXAS ELECTRIC	M	1/31/78	348 90-
1016	112 STANDARD OFFICE	M	1/31/78	3 22-
1017	113 PERCY'S TOURS	M	1/31/78	45 00-
1018	114 CAPITAL EQUIP CO	M	1/31/78	1,000 00-
1026	ACCT REC JOURNAL	M	1/31/78	5,000 00
			TOTAL	4,248 00
** ACCT NO. 1003 ACCOUNTS RECEIVABLE			ACCT TYPE A **	
1002	JAN 20 SALES REPORT	M	1/20/78	15,498 00
1026	ACCT REC JOURNAL	M	1/31/78	5,000 00-
			TOTAL	10,498 00
** ACCT NO. 1005 MDSE INVENTORY			ACCT TYPE A **	
1004	COST OF SALES RECAP	M	1/31/78	10,853 40-
1027	PURCHASES JOURNAL	M	1/31/78	8,000 00
			TOTAL	2,853 40-
** ACCT NO. 1006 FIXED ASSETS			ACCT TYPE A **	
1018	114 CAPITAL EQUIP CO	M	1/31/78	1,000 00
			TOTAL	1,000 00
** ACCT NO. 1007 DEPR ALLOWANCE			ACCT TYPE A **	
1024	DEPR SCHEDULE	M	1/31/78	250 00-
			TOTAL	250 00-
** ACCT NO. 2001 ACCOUNTS PAYABLE			ACCT TYPE L **	

Sample Reports

Income Statement

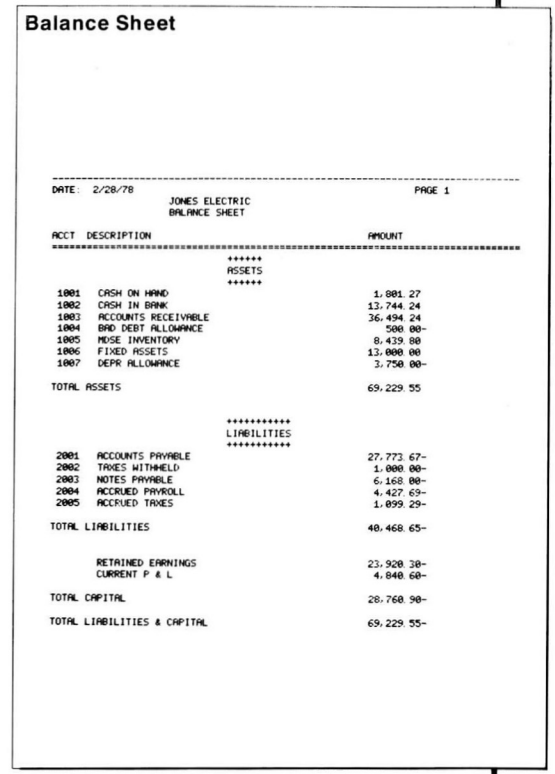


DATE 2/28/78 PAGE 1

JONES ELECTRIC
INCOME STATEMENT
PERIOD ENDING 02/28/78

ACCT	DESCRIPTION	CURRENT	%	YEAR-TO-DATE	%
	** GROSS SALES				
3001	CASH SALES	4,567.09-	21.3	9,134.18-	21.3
3002	30 DAY CHG SALES	15,498.08-	72.4	30,996.16-	72.4
3003	CREDIT CARD SALES	1,345.54-	6.3	2,691.00-	6.3
**	TOTAL GROSS SALES	21,410.71-	100.0	42,821.42-	100.0
	** COST OF GOODS SOLD				
3101	COST OF SALES/CASH	2,106.18	9.8-	4,212.36	9.8-
3102	COST OF SALES/CHG	8,102.86	37.8-	16,204.12	37.8-
3103	COST OF SALES/CR CD	645.16	3.0-	1,290.32	3.0-
**	TOTAL COST OF GOODS SOLD	10,853.40	50.7-	21,706.80	50.7-
	GROSS PROFIT	10,557.31-	49.3	21,114.62-	49.3
	** SELLING EXPENSES				
4101	ADVERTISING	82.45	0.4-	164.90	0.4-
4102	COMMISSIONS	345.23	1.6-	690.46	1.6-
4103	PROMOTION	45.67	0.2-	91.34	0.2-
4104	PUBLICITY	100.00	0.5-	200.00	0.5-
5101	SALESMEN'S SALARIES	500.00	2.3-	1,000.00	2.3-
**	TOTAL SELLING EXPENSES	1,073.35	5.0-	2,146.70	5.0-
	** GENERAL OVERHEAD				
5102	CLERICAL SALARIES	432.56	2.0-	865.12	2.0-
5103	ADMIN SALARIES	876.67	4.1-	1,753.34	4.1-
5104	MANAGEMENT SALARIES	987.78	4.6-	1,975.56	4.6-
6101	COMPUTER FEES	1,234.45	5.8-	2,468.90	5.8-
6102	DUES & SUBSCRIPTIONS	36.00	0.2-	72.00	0.2-
6103	AUTO EXPENSE	134.34	0.6-	268.68	0.6-
6104	RENT EXPENSE	1,224.34	5.8-	2,468.68	5.8-
6105	UTILITIES	348.98	1.6-	697.96	1.6-
6106	TAXES	166.43	0.8-	332.86	0.8-
6107	DEPRECIATION	250.00	1.2-	500.00	1.2-
6108	ACCOUNTING	800.00	3.7-	1,600.00	3.7-
6109	LEGAL FEES	457.89	2.1-	915.78	2.1-
6110	INTEREST	56.00	0.3-	112.00	0.3-
6111	SUPPLIES	3.22	0.0-	6.44	0.0-
6112	TRAVEL	45.00	0.2-	90.00	0.2-
**	TOTAL GENERAL OVERHEAD	7,063.66	33.0-	14,127.32	33.0-
	TOTAL INCOME	21,410.71-	100.0	42,821.42-	100.0
	TOTAL EXPENSE	18,590.41	86.7-	37,980.82	88.7-
NET PROFIT (POSITIVE NO. = LOSS)		2,820.30-	13.3	4,840.60-	11.3

Balance Sheet



DATE 2/28/78 PAGE 1

JONES ELECTRIC
BALANCE SHEET

ACCT	DESCRIPTION	AMOUNT
	++++++ ASSETS ++++++	
1001	CASH ON HAND	1,801.27
1002	CASH IN BANK	13,744.24
1003	ACCOUNTS RECEIVABLE	36,494.24
1004	BAD DEBT ALLOWANCE	500.00-
1005	MDSE INVENTORY	8,439.80
1006	FIXED ASSETS	13,000.00
1007	DEPR ALLOWANCE	3,750.00-
TOTAL ASSETS		69,229.55
	++++++++++ LIABILITIES ++++++++++	
2001	ACCOUNTS PAYABLE	27,773.67-
2002	TAXES WITHHELD	1,000.00-
2003	NOTES PAYABLE	6,168.00-
2004	ACCRUED PAYROLL	4,427.69-
2005	ACCRUED TAXES	1,099.29-
TOTAL LIABILITIES		40,468.65-
	RETAINED EARNINGS	23,920.30-
	CURRENT P & L	4,840.60-
TOTAL CAPITAL		28,760.90-
TOTAL LIABILITIES & CAPITAL		69,229.55-

RADIO SHACK TRS-80™
SOFTWARE LIBRARY

Games & Novelty Programs

Suggested retail prices may vary at individual stores and dealers

26-1801 Blackjack/Backgammon (Level I only)
26-1803 Blackjack/Backgammon (Level II only)

Enjoy these two old standards on your TRS-80. Blackjack plays with standard Las Vegas rules, the only exception being that there are no splits. You can choose one or two players (plus the computer) and use one or two decks of cards. Place your bets, and then the computer will automatically deal the cards — it even pauses to "reshuffle" when all the cards have been dealt. You can find out which cards have been played so far in the deck(s) before deciding whether to stand with your cards or draw. At the end of a hand, each player's total winnings (or losings) are displayed. It's almost like having your own casino. In backgammon, two players challenge each other on a graphic backgammon board displayed on the computer's video screen. The pieces are moved around the board on numbered spaces by using the commands "from___" and "to___". "Dice" are rolled randomly by the computer, and of course you always get four moves when you roll doubles — just like playing on a regular board. Both games are included on just one cassette. 4K RAM (minimum) required. **$4.95 ea.**

26-1802 Quick Watson! (Level I or Level II)

A game of elementary deduction which allows you the opportunity to match specific criminals to specific crimes. All of the crimes were committed during the Great Train Robbery in England. After more than a year of searching, Scotland Yard has rounded up seven suspects for the four crimes committed — assault, felony theft, arson and illegal parking. You have up to eight trials (after which the statute of limitations runs out) to match the right criminal to the right crime. But remember, a criminal may have committed more than one crime! A lie detector helps you keep track of the suspects for each trial. It tells you if you have pegged the right suspect to the right crime or if you've named a guilty suspect to the wrong crime. One computer game that old Sherlock would surely have found fascinating! **$4.95**

26-1805 Games Pack I (Level I only)

A collection of six games designed to challenge all types of computer fans. Start out with a friendly game of CHECKERS — you play against the computer. Then try HAMMURABI, where you test your skills at running a nation. Careful planning will make your reign a success or a failure. RANDOM TIC-TAC-TOE adds a new and challenging twist to an old game, requiring almost as much planning and concentration as chess. After that you can take over your own rocket craft in SPACE TAXI — a new version of the popular Lunar Lander type of computer game, only with a few extra obstacles added. To win this one, you must really stay on your toes! DRAW is a fascinating and useful series of three programs which allows you to draw patterns, save them on tape and use them again. STAR PILOT puts you in the cockpit of your own fighter. Shoot down the evil enemy aircraft, but think fast because it's constantly taking evasive action! Six super games that'll challenge your mind and keep you entertained at the same time. 4K (minimum) RAM required. **$19.95**

26-1901 MICROCHESS (Level I or Level II)

Playing chess against your TRS-80 can be quite a challenge! And there are three different levels of difficulty, so there's sure to be plenty of action for the more advanced player while letting the beginner have a chance to learn and improve his game. Intelligence Level One responds very quickly with its moves while in Level Three a game might take an hour to complete. The graphics are displayed on the TRS-80 video monitor, and moves are shown instantaneously. You can even swap ends of the board with the computer and finish the game playing with the computer's chessmen. That way, it's simple to find out what the computer would do if it were in your situation. Since you can also pass a turn, you can actually make the TRS-80 play against itself by alternating passes with swaps. MICROCHESS is the ultimate chess partner because it thinks ahead as many as three moves and considers almost every possibility. 4K (minimum) RAM required. **$19.95**

26-1902 Micro Music (Level I or Level II)

Let out the hidden musician within you! Micro Music turns your TRS-80 into a new musical instrument that even someone with no musical talent at all can play. In just a few hours, you'll be playing your favorite tunes. And if you're already a musician, you're sure to appreciate how easily the TRS-80 allows you to compose and play back new works with a wide range of control. Micro Music has a five-octave range, including sharps and flats! You can play whole notes, half notes, quarter notes, and eighth notes, as well as dotted notes and triplets. All you'll need to put together your favorite music or create your own compositions. To start, you type the desired melody directly onto the monitor screen. To play it back, you can connect it to a speaker/amplifier unit or even a hi-fi system. Another method is to record it on cassette and then play it back. It's all lots of fun plus a great way to add a new dimension to all types of music. **$9.95**

26-1903 Micro Movie (Level I or Level II)

Movies on your TRS-80? You bet! First draw the "scenes" onto the video screen in the same way you use a child's sketch-etching toy—in a combination of vertical, horizontal and diagonal lines. Give them movement, add word blurbs for movie dialogue, and you've just produced your very own full length TRS-80 feature film! It's simple to program almost anything you want onto the screen — within the limits of standard TRS-80 graphics. Step-by-step instructions tell you everything you need to know about creating movement, repeating previous scenes and creating other effects to make your movies seem more realistic. Popcorn not included. **$9.95**

26-1904 Micro Marquee (Level I or Level II)

The TRS-80 Marquee program will produce a moving sign containing 13 one-inch characters per line. It's ideal for use in retail stores to display special sale messages. Create all types of signs — birthday wishes, announcements, memos and much more. All you have to do is type in the message you want to display. When you want to start another line, key in a semicolon. Press the ENTER key when you're finished and then you're ready for "banner headlines" on your video screen! **$4.95**

RADIO SHACK TRS-80™
SOFTWARE LIBRARY

Advanced Programming Aids

Suggested retail prices may vary at individual stores and dealers

26-2002 Editor/Assembler (Suggested for advanced programmers only)

The Radio Shack TRS-80 Editor Assembler brings assembly language programming to the TRS-80, offering the speed and efficiency of machine language combined with the convenience of a text editor and assembler. The text editor is similar to that found with Level II Basic but with many powerful additions. You can search for a particular string of characters anywhere in the text, renumber lines, scroll up or down and print to the line printer with or without line numbers! This text can be written to tape in its present "source" format or it can be assembled into executable or "object" format and then loaded under the SYSTEM command in BASIC.

The assembler has a set of switches which provide complete control over the assembler's operation. No List, No Object code, No Symbol table, Route to line printer, and Wait on errors may be used in any combination. Labels may be up to 5 characters and can be used with EQUates. The assembler resolves both arithmetic (+ or −) and logical expressions containing any combination of hex, octal, or decimal constants, Error messages are displayed in complete phrases, not some obscure code. The program requires 16K of memory and is easiest to use with Level II, but a special "SYSTEM" tape makes Level I execution possible. Standard Zilog numeronics are used throughout. Macros and conditional assembly are not supported.

The Editor-Assembler comes with a 132 page manual divided into 5 basic sections. The first describes the commands available to the programmer. They are summarized on the first few pages and explained in detail with examples on the following pages. The next section explains the assembly language syntax. Labels, operands, flags, and pseudo-ops are detailed. The complete instruction set is presented in Zilog format, grouped according to function. Since assembly language is so closely tied to the architecture of the microprocessor, the Z80 configuration is outlined in the fourth section. The final chapter is a series of appendices which include numeric and alphabetic instruction lists, error messages, I/O calls to Level I and Level II ROM, and a Level II memory map. This complete package offers the best in tape based development software, and while it is not recommended for beginning programmers, it can open a new world for those who have mastered Level II BASIC. **$29.95**

RADIO SHACK TRS-80™
SOFTWARE LIBRARY

Advanced Programming Aids

Suggested retail prices may vary at individual stores and dealers

26-2001 T-Bug System Monitor (Suggested for advanced programmers only)

TBUG is a powerful, machine-language monitor designed to give you direct access to the Z-80 CPU, which is the heart of the Radio Shack TRS-80 Microcomputer. TBUG provides the capability to:

1. **Create and modify machine-language programs.** The "M" command (followed by a hex address) causes the contents of that memory location to be displayed on the screen. If a new hex value is typed, that memory location is modified; if ENTER is pressed, the next memory location is automatically displayed.

2. **Debug machine-language programs through the use of breakpoints.** The "B" command sets a breakpoint at a specified address. When a program is executed via a Jump instruction, execution continues until the breakpoint address is reached, control is returned to TBUG and registers or memory may be examined. The "F" or FIX command restores the original code to the breakpoint address.

3. **Examine and modify the contents Z-80 registers.** The "R" command displays both sets of Z-80 registers. The contents of these registers can be altered by modifying a specific area of RAM. If this is done at a breakpoint, you can FIX the breakpoint, set a new one, and continue execution with the altered registers.

4. **Save and load machine-language programs using cassette tape.** The "P" or Punch command will write any contiguous block of memory to tape. This is the only way to save programs under TBUG. The "L" load command will load memory from tape exactly as it was punched.

5. **Execute machine-language programs created using TBUG** (if you have a LEVEL II TRS-80, you can also execute programs created with the Editor/Assembler program via TBUG). The "J" or Jump instruction performs an absolute jump into memory. The only way to return to TBUG is through a breakpoint or another jump to TBUG's reentry point.

An extensive manual comes with the program. Subjects covered include TBUG commands, the Z-80 instruction set, Level I to Level II conversion instructions, a memory map for Level II, and many I/O calls to ROM for both Level I and Level II. TBUG is an invaluable aid to owners of the TRS-80 Editor Assembler. **$14.95**

26-2004 Level II Line Renumber

Renum is a programming aid for use with Level II BASIC, permitting the user to renumber all or part of his basic program. All references to line numbers contained within the program are updated to reflect the new numbers. Old starting line, new starting line number and new increment between lines may be specified. Renum is supplied on cassette tape for use in 4K, 16K, 32K or 48K Level II machines. **$9.95**

RADIO SHACK TRS-80™
SOFTWARE LIBRARY

Disk Mailing List System

Cat. No. 26-1551

Suggested Retail Price (may vary at individual stores and dealers) $39.95

Description

Disk Mailing List System is a program for TRS-80 mini-disk owners, used to build and maintain a list of names. You can edit, delete or retrieve any of them at any time, and of course you can print mailing labels for all or any selected part of the list if you have a tractor-feed line printer in your system.

The system stores:

1. Name
2. Company Name or Phone No.
3. Street Address
4. City
5. State
6. Zip Code
7. Select Code (Optional)

Labels can be printed selectively by any of the above "keys." The select code could be used to classify the occupation of the person, or "Dues Paid '79," or any other type of "key" you might need. Disk files are used to save the names and addresses and are sorted each time a new name is added. Of course, you can have as many data diskettes as you wish, so your list can be quite long. If you're a disk owner, you won't want to miss this program. If you don't need a mailing list, you could use it to catalog items of various types and print selected lists for you. . . with or without program modification.

Format

One program diskette and one blank diskette are included with the bound manual.

Hardware Required

- 16K Level II TRS-80
- Expansion Interface with 16K RAM
- One to Four TRS-80 Mini-Disk Drives

And if Labels are to be Printed . . .

- TRS-80 Tractor-Feed Line Printer and Line Printer Cable
  NOTE: Labels are available from Radio Shack, Cat. No. 26-1404

Limitations

Number of Names — On your TRSDOS Diskette, approx. 250
— On each Data Diskette, approx. 600
(Exact number depends on length of listings.)

RADIO SHACK TRS-80™
SOFTWARE LIBRARY

Cassette Mailing List System

Cat. No. 26-1503

Suggested Retail Price (may vary at individual stores and dealers) $19.95

Description

The cassette version of Radio Shack's Mailing List System is a RAM-based Level II program which builds and maintains a list of names. You can review, edit, delete, or add to your list, and if your system is equipped with a TRS-80 tractor-feed line printer, you can print labels. Programs and all names are read from cassette into memory. 16K RAM (minimum) is required.

Information stored includes:

1. Name
2. Company Name or Phone No.
3. Street Address
4. City
5. State
6. Zip Code
7. Select Code (Optional)

You can choose to print labels for everyone on your list, or you may use any of the seven items above as a "key" to print selectively. For example, only those in New York, or only those whose zip code starts with "761" or, using the optional "select code," only lawyers, or club members whose dues are overdue. Flexibility of the system is outstanding, and the possibilities for office, business, club, or even individual use are almost endless.

Format

The cassette program is packaged in a binder with one program cassette, one C-20 blank data cassette and manual.

Hardware Required

- Level II TRS-80 with 16K RAM

And if Labels are to be Printed . . .

- Expansion Interface
- TRS-80 Tractor-Feed Line Printer and Line Printer Cable

NOTE: Labels are available from Radio Shack, Cat. No. 26-1404

Limitations

Number of Names — Total list limited only by the number of cassette tapes.
— Number of names which can be processed in 16K memory at one time will vary from 80 to 150 depending on the number of characters in each listing. Of course, more memory (in the Expansion Interface) allows processing of more names at one time.

Radio Shack A DIVISION OF TANDY CORPORATION • FORT WORTH, TEXAS 76102

Advanced Statistical Analysis

Cat. No. 26-1705

Suggested Retail Price (may vary at individual stores and dealers) $39.95

General Description

Advanced Statistical Analysis (ASA) is a user-oriented data analysis system designed for use on the Radio Shack TRS-80 Microcomputer. The system is ideally suited for applications in business, education, medicine, government administration and other fields. The programs can be run with little formal knowledge of data analysis techniques and no knowledge of computer programming. Each program was written to interact with you and guide you in conducting statistical analyses. A comprehensive set of instructions and error messages is built into the ASA programs. Advanced Statistical Analysis includes ten programs for describing data sets and conducting statistical data analyses; two utility programs for preparing, updating, and listing data files stored on tape or disk; and a program to aid in selecting data samples. All ASA programs provide the option for printing results on the TRS-80 Line Printer or Quick Printer.

Format

The 13 programs are supplied on 7 cassette tapes stored in a vinyl binder with a detailed 170-page manual containing step-by-step instructions and sample runs for each program.

Hardware Required

Level II TRS-80 with at least 16K RAM.

Hardware Supported

Disk System for storage of data files and ASA programs
Line Printer or Quick Printer — for program results.

Limitations

Maximum tape data file size is limited by TRS-80 memory (See Tape Data Files). Maximum disk data file size limited by free space on the diskette. Only one ASA program has significant data set limitations (see Time Series Analysis II).

Single and double precision operations are utilized in various ASA programs. In most cases, since the data collected for use in statistical analysis procedures contain a fair amount of measurement error, rounding errors in the displayed results should be negligible.

Programs

TAPE DATA FILES provides all the necessary file handling functions for data files stored on cassette tape. The program is used to prepare new files and to update, correct, copy, and list old files. File names that you supply are used to identify each data file. Approximate maximum tape data file sizes are listed below.

16K RAM	32K RAM
800 single data elements	2000 single data elements
400 data pairs	1000 data pairs
100 multiple regression subjects	250 multiple regression subjects

DISK DATA FILES provides all the necessary file handling functions for data files stored on disk. The program is used to prepare new files and to update, correct, copy and list old files.

RANDOM SAMPLE will aid you in selecting a random sample from a larger group of subjects, items or observations. Stratified random sampling can be performed by running the program more than once. After you specify the size of the population and the size of the desired sample, the Computer selects the sample and lists the numbers of the chosen data elements. Sampling may be performed with or without replacement.

DESCRIPTIVE STATISTICS provides you with an overall picture of your data. Output from the program includes sample statistics (mean, variance, standard deviation, range, minimum, and maximum); sample size; unbiased estimates of population parameters (variance and standard deviation); and data distribution coefficients (skewness and kurtosis).

HISTOGRAM allows you to obtain a graphic description of your data set. The histogram is drawn with from one to eight intervals (you select the number). You may set the limits of each interval or allow the Computer to calculate limits for equal size intervals. Both frequencies and percentages are labeled on the histogram and each interval is plotted with considerable accuracy. The number of intervals on the histogram can be changed at will without the need for re-entering the data. The print option may be selected each time the histogram is reconstructed, and the histogram will be graphically reproduced on your printer.

FREQUENCY DISTRIBUTION provides a tabular description of the distribution of values in a set of data. The table is prepared with from one to ten intervals (you select the number). You may set the limits of each interval or allow the Computer to calculate limits for equal size intervals. The number of intervals in the table can be changed at will without the need for re-entering the data. Entries on the frequency distribution table include interval limits, frequency of occurrence, percentage for each interval and cumulative percentage by interval. The printer option may be selected each time the table is reconstructed.

ANALYSIS OF VARIANCE performs a one-way (single-classification) analysis on two to five groups or samples. Sample sizes may be equal or unequal. Output from the program includes the analysis of variance (ANOVA) summary table, F ratio, estimate of exact chance probability, and summary statistics (N, mean, and standard deviation) for each group in the study.

T-TEST FOR MATCHED PAIRS allows you to test for a significant difference between means. The model may involve matched samples or a pre/post design. A one-tailed or two-tailed hypothesis may be selected. This procedure is also referred to as a t-test for correlated data, related measures, matched samples, etc. Output includes means, standard deviations and standard errors of the means for the two variables; number of pairs; product-moment correlation between X and Y; difference between means; degrees of freedom; t ratio; and a probability estimate.

CORRELATION & LINEAR REGRESSION is a multi-step program which describes the relationship between two variables or sets of measurements, calculates regression coefficients, provides an X by Y plot of the data with or without the regression (prediction) line and allows you to obtain the predicted value of Y at any value of X. The output also includes means and standard deviations for X and Y, number of pairs and degrees of freedom. If you select the print option, the statistical results and the X by Y plot (with or without the regression line) will be reproduced on your printer.

MULTIPLE LINEAR REGRESSION will perform an analysis with up to five independent variables on any number of subjects. Output from the program includes the coefficient of determination; coefficient of multiple correlation; standard error of estimate; regression, residual and total sums of squares; F ratio; degrees of freedom; probability of chance; and means, standard deviations and regression (equation) coefficients for each variable. Any or all independent variables on a data file may be included in the anlaysis and the regression model may be modified without re-creating the data file.

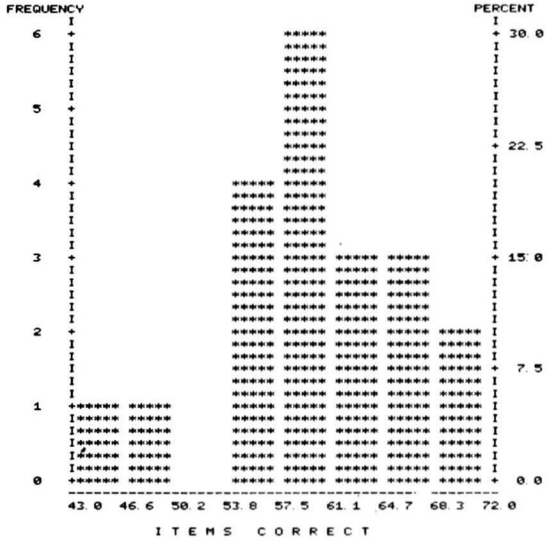
TIME SERIES ANALYSIS I analyzes a set of observations made at different periods of time for trend and allows you to obtain predicted values of the variable under study according to a least squares trend line fitted through the data. The test performed to ascertain whether trend is present in the data is the sign (change of direction) test. Output includes the percentage of variance accounted for by the trend, coefficients for the trend line equation, point of origin and time unit. Additionally, the program plots the time series data with or without the trend line. Results of the analysis and the data plot may be printed on your printer. The program utilizes yearly, quarterly, monthly or weekly data.

TIME SERIES ANALYSIS II calculates seasonal indexes for quarterly or monthly time series data and n-item moving averages for data collected yearly, quarterly, monthly, weekly or daily. Quarterly and monthly seasonal indexes are calculated using the ratio to moving averages method with an adjustment for rounding error. The largest and smallest values for each quarter or month are discarded before the index is derived. All even-item moving averages are automatically centered by taking a 2-item moving total before averaging. You select the number of items comprising the moving average. Approximate internal memory limitations for Time Series Analysis are listed below.

16K Level II BASIC - 825 observations
16K DISK BASIC - 140 observations
32K Level II BASIC - 2150 observations
32K DISK BASIC - 1450 observations

CHI SQUARE ANALYSIS performs a test on data in the form of a contingency table. The table may have any dimensions from 1 X 2 to 8 X 8. Output includes the number of rows and columns in the contingency table, total number of observations, number of expected frequencies less than five, chi square, degrees of freedom and probability of chance. Additionally, tables of observed and expected frequencies are displayed. Expected frequencies may be input by the user or computed automatically. A correction for continuity is automatically applied when necessary.

HISTOGRAM



ANALYSIS OF VARIANCE

SUMMARY TABLE

SOURCE	SS	DF	MS
TOTAL	2351.25	20	
BETWEEN	196.043	3	65.3477
WITHIN	2155.2	17	126.777

F-RATIO = 515455
DEGREES OF FREEDOM = 3 & 17
PROBABILITY OF CHANCE = 0.681

GROUP STATISTICS

GROUP	N	MEAN	S.D.
TREATMENT A	5	21.6	7.79744
TREATMENT B	6	22	15.1262
TREATMENT C	5	20.8	10.3537
NO TREATMENT	5	14.4	9.2087

RADIO SHACK TRS-80™
SOFTWARE LIBRARY

Educational Programs

Suggested retail prices may vary at individual stores and dealers

26-2005 Level II BASIC Course — Part 1

Part One of our Level II BASIC course is a beginner's course designed to introduce potential programmers to this powerful Level II language. It introduces the primary commands and includes lots of examples, drills, graphic illustrations of command usage, and even student problems. Four cassettes make up a total of eight lessons. No previous experience with programming is necessary. Requires Level II (4K minimum) TRS-80. **$14.95**

Topics include:

Line Numbers
Variables
INPUT
LIST
RUN
Editing
PRINT (format, tab, spacing)
Numbers
Strings
Expressions
Hierarchy
GOTO Statements
READ/DATA Statements
Arrays
Looping
FOR NEXT Statements
Functions
Graphics
GOSUB Statements
On GOSUB; On GOTO
Restore

26-2006 Level II BASIC Course — Part 2

Part Two of Level II BASIC course is an extension of Part One, so it is advisable that the student have some knowledge of computers and computer programming before undertaking it. Eight additional lessons on four cassettes explore the more complex capabilities of this advanced and powerful language. This educator-written course is thorough, yet easy to understand. Requires Level II (16K minimum) TRS-80. **$19.95**

Topics include:

LIST
EDIT
Variable Types
Arrays
Operators
Commands
Input & Output
Advanced String Techniques
Special Features
Machine Language Subprograms

Educational Programs

Suggested retail prices may vary at individual stores and dealers

26-2003 Level I BASIC Course (Level I only)

The unique capabilities of the computer as a medium for learning are fully realized in this course where the program actually teaches the prospective programmer how to program. Four cassettes make up the complete Level I elementary BASIC course. It is not necessary for the student to have any previous experience with computers, computer programming or any technical subject. The course is designed for the student to be able to write simple programs within a matter of minutes. Upon completion, the student should be able to write meaningful and practical-sized programs in BASIC. Requires Level I (4K minimum) TRS-80. **$12.95**

26-1701 Math I (Level I only)

Math I is specially designed for 1) beginning students, 2) children with specific learning disabilities, 3) any age learner who is having difficulty with basic math, 4) anyone who would benefit from a review of basic math operations. It is a highly structured approach that teaches the learner to understand and use math facts. It helps in the memorization and retention of facts and then shows the learner how to apply their use in other math situations. Emphasis is placed in repetition and review. The program provides total communication and feedback which incorporates individualized instruction either in a group with an instructor or as a single one-to-one activity. Requires Level I (4K minimum) TRS-80. **$19.95**

26-1702 Algebra I (Level I only)

Algebra I is a versatile program designed to teach the basics of Algebra. Instruction is completely self-paced, so it can be taken at the speed most comfortable for the student. Plus it is ideal for use as a supplement to an existing course or as a refresher course just to brush up on the subject. The course begins with definitions of variables, constants, terms, expressions, and the use of parentheses. It then proceeds into the second lesson in which the student learns to solve equations. The last of the six lessons in algebra concerns solving quadratic equations by factoring. School textbooks make an excellent complement to the course. Requires Level I (4K minimum) TRS-80. **$19.95**

RADIO SHACK TRS-80™
SOFTWARE LIBRARY

Inventory Control I

Cat. No. 26-1553

Suggested Retail Price (may vary at individual stores and dealers) $99.95

Description

The Radio Shack "Inventory Control System" (ICS) is designed to provide you with the information you need for proper control of your retail inventory. Key features are:

1. Accurate daily cost of goods sold
2. Accurate control between physical inventories
3. Records of merchandise movement
4. Rapid access to all data
5. Storage of up to 1,000 different stock items
6. Complete reports available at any time

Format

Diskette only. Binder includes one program disk and one blank disk for data storage, plus manual.

Hardware Required

Radio Shack's "32K Business System" including . . .

- Level II, 16K TRS-80
- Expansion Interface with 16K RAM
- TRS-80 Line Printer and Cable
- 2 Mini-Disk Drives

Limitations

1. Quantities (per stock item) cannot exceed 9,999 units
2. Cost and sell prices cannot be in fractions of a penny
3. You cannot enter more than 1,000 sales ticket items at one time

Reports Generated

1. Complete inventory list (with or without cost/profit figures)
2. Not-in-stock items
3. List of items on order
4. All items below reorder level
5. Inventory list by vendor
6. Inventory list by stock number (prefix or suffix option)
7. Suggested purchase order (by vendor)

Radio Shack® A DIVISION OF TANDY CORPORATION • FORT WORTH, TEXAS 76102

Sample Reports

Complete Inventory Listing

01/01/79

COMPLETE INVENTORY LISTING

STOCK #	DESCRIPTION	QTY	COST	SELL	GP %	LOCATION	R/O PT / QTY	ON ORDER	DATE	VENDOR	CURR / CUML
26-1001	BLUE BOX	19	359.95	400.00	10.0	TEC WAGE	100 / 200	100	11/08/79	TAP	0 / 0
26-1003	GREEN BOX	10	19.90	29.95	33.6	TEC WAGE	50 / 100	100	11/03/78	TAP	0 / 0
26-1205	RED BOX	65	42.50	49.95	14.9	TEC WAGE	120 / 100	100	12/15/78	MCA	0 / 0

TOTAL ITEMS LISTED: 3
TOTAL COST VALUE: $9,959.75
TOTAL RETAIL VALUE: $11,305.05

TOTAL COST OF ORDERS: $42,235.00

END OF LISTING

Listing of Not-in-Stock Items

01/01/79

LISTING OF NOT-IN-STOCK ITEMS

STOCK #	DESCRIPTION	QTY	COST	SELL	GP %	LOCATION	R/O PT / QTY	ON ORDER	DATE	VENDOR	CURR / CUML
26-1205	RED BOX	0	42.50	49.95	14.9	TEC WAGE	120 / 100	100	12/15/78	MCA	0 / 0

END OF LISTING

Listing by Vendor

01/01/79

LISTING BY VENDOR: TAP

STOCK #	DESCRIPTION	QTY	COST	SELL	GP %	LOCATION	R/O PT / QTY	ON ORDER	DATE	VENDOR	CURR / CUML
26-1001	BLUE BOX	19	359.95	400.00	10.0	TEC WAGE	100 / 200	100	11/08/79	TAP	0 / 0
26-1003	GREEN BOX	10	19.90	29.95	33.6	TEC WAGE	50 / 100	100	11/03/78	TAP	0 / 0

NUMBER OF ITEMS: 2
TOTAL COST VALUE: $7,197.25
TOTAL RETAIL VALUE: $8,139.10
TOTAL COST OF ORDERS: $37,905.00

END OF LISTING

Listing of All Items at or Below Reorder Point

01/01/79

LISTING OF ALL ITEMS AT OR BELOW REORDER POINT

STOCK #	DESCRIPTION	QTY	COST	SELL	GP %	LOCATION	R/O PT / QTY	ON ORDER	DATE	VENDOR	CURR / CUML
26-1001	BLUE BOX	19	359.95	400.00	10.0	TEC WAGE	100 / 200	100	11/08/79	TAP	0 / 0
26-1003	GREEN BOX	10	19.90	29.95	33.6	TEC WAGE	50 / 100	100	11/03/78	TAP	0 / 0
26-1205	RED BOX	65	42.50	49.95	14.9	TEC WAGE	120 / 100	100	12/15/78	MCA	0 / 0

END OF LISTING

Listing of All Items on Order

01/01/79

LISTING OF ALL ITEMS ON ORDER

STOCK #	DESCRIPTION	QTY	COST	SELL	GP %	LOCATION	R/O PT / QTY	ON ORDER	DATE	VENDOR	CURR / CUML
26-1001	BLUE BOX	19	359.95	400.00	10.0	TEC WAGE	100 / 200	100	11/08/79	TAP	0 / 0
26-1003	GREEN BOX	10	19.90	29.95	33.6	TEC WAGE	50 / 100	100	11/03/78	TAP	0 / 0
26-1205	RED BOX	65	42.50	49.95	14.9	TEC WAGE	120 / 100	100	12/15/78	MCA	0 / 0

TOTAL COST OF ORDERS: $42,235.00

END OF LISTING

RADIO SHACK TRS-80™
SOFTWARE LIBRARY

Real Estate

Volumes 1, 2 and 3

Suggested retail prices may vary at individual stores and dealers

26-1571 Real Estate, Volume 1 $29.95

1. **Mortgage Payments and Terms.** Given standard mortgage loan terms, program calculates regular periodic payment required to fully amortize a mortgage. Program can also solve for unknown element of mortgage terms given mortgage payment amount.
2. **Mortgage Balance.** For any specified mortgage terms, program calculates balance on the mortgage at any time, together with total of payments made, and allocations to principal and interest.
3. **Mortgage Amortization.** Program calculates and displays a standard mortgage amortization schedule, with allocations of principal and interest. Allowance is made for user defined entry of unique mortgage payment requirements.
4. **Wrap Around Mortgage.** For any possible combination of existing and new "wrap around" mortgage, this program calculates:

   A. Mortgage yield given a wrap around mortgage interest rate.

   B. Mortgage interest rate for a given rate of yield.

26-1572 Real Estate, Volume 2 $29.95

1. **Compound Interest.** Calculates the six compound interest functions for any interest, rate and term, and includes a special calculation of the annualized mortgage payment factor.
2. **Rate of Return.** Calculates the internal rate of return for any series of annual before or after tax cash flows; it also incorporates Modified Internal Rate of Return and Financial Management Rate of Return calculations as options.
3. **Resale Analysis.** Calculates the required resale price to achieve a given yield on equity investment, as well as the associated amount of property value change.
4. **Stepped Income Analysis.** A special cash flow analysis routine which calculates present worth of income streams changing at constant amount or percent.

Radio Shack® A DIVISION OF TANDY CORPORATION • FORT WORTH, TEXAS 76102

26-1573 Real Estate, Volume 3 $29.95

1. **After Tax Overall Cap Rate.** Using an investor's income tax information and requirements for after income tax investment yield, this program calculates the commonly understood overall cap rate to express for the investor an appropriate relationship between net income and investment value.
2. **Income and Expense Projection.** This program permits the user to define any combination of up to 20 lines of income and expense information, and to individually vary each line item according to its expected trends over a stated time frame. In projecting a final indication of net cash flows by years, the user may vary items in a regular pattern, randomly, or hold items constant.
3. **Present Worth of Variable Income.** Any pattern of monthly, quarterly, semi-annual or annual cash flows may be analyzed to determine their present worth at stated yield rates. The program handles both beginning and end of period payments, and consideration of a cash reversion (if any).
4. **Appreciation and Depreciation for Yield.** Users may define any combination of six yield rates which will then be applied to economic data supplied by the user to calculate percents of appreciation and/or depreciation from original price required to achieve the stated yields. The program also calculates required resale price for each yield rate. All calculations are based on five and ten year projection periods.

Format

Each volume is packaged in a binder with manual and 4 programs on 2 cassettes. All programs support printer if it is connected and turned on.

Hardware Required

★ Level II TRS-80 with 16K RAM.

And if tables are to be printed . . .

★ Expansion Interface or Printer Interface Cable
★ TRS-80 Line Printer

Software Packages from Radio Shack Open up new vistas for your TRS-80!

Radio Shack has TRS-80 software (programs) for business, engineering, educational, laboratory and home use — even computer games. Software is available on high-grade digital cassettes for both Level-I and Level-II TRS-80's, and on diskettes for mini-disk systems. And Radio Shack is developing additional software on a continuing basis. So check with your nearby Radio Shack store or dealer for the latest software information.

Radio Shack®
The biggest name in little computers™

Radio Shack®
700 One Tandy Center • Fort Worth, Texas 76102