

THE FREE TCS LETTER IS A CLUB PROJECT OF  
THE TIDEWATER TRS-80 USERS GROUP\*\*\*\*\*  
PUBLISHED ON RAINY WEEKENDS ----- DEC 1979

MERRY CHRISTMAS. Yes, it's that time of year again and many of us are looking forward to goodies like extra memory, disks, printers, etc. that we hope Santa knows we want for our TRS-80's.

## NEW PRODUCTS

There is a lot to choose from compared to the Christmas of 1977 when this writer's TRS-80 was only two months old. The only thing you could find to go with a TRS-80 back then was 16K memory chips for \$52 each (\$416 a set). Prices dropped when they got into full production and a set of eight has been below \$100 for quite awhile now (except \$149 from Radio Shack). But look for prices to start going up again, perhaps 20% per year for the 4116 variety. So consider buying now if you are in the market.

Christmas came early around here. After waiting a full month, we received the "System Expansion" interface PC board we ordered from LNU RESEARCH, PO BOX 16216, IRVINE, CA 92713. It seems to have all the features and output connectors as the Radio Shack unit plus built-in RS232 instead of on a separate board. The beauty of this one is that for \$69.95 you get the PC board and 43-page manual which lists parts in sections so you only have to buy and install the parts you need for particular features. A kit of 9 of the hardest to find IC's (not including the 1771 floppy disk controller) and a 4 MHz crystal sells for \$23.19 ppd. Assembled units (except RAM) are \$349.95 but availability is limited. (Except for the IC kit, all orders require \$3 shipping and 6% tax for CA residents.) We were getting concerned about the length of time it was on order and the vague estimate of delivery date we got. But now that it's here we are happy to report that this board appears to be extremely well made and well documented. We'll let you know how well it works in the next newsletter.

If the only expansion you are interested in is a printer or dual cassettes, you don't need an expensive expansion interface.... Radio Shack now sells an interface cable for \$59 which connects between the TRS-80 keyboard unit and at least three of the five printers they offer plus a number of parallel printers from other sources. Catalog number 26-1411 is for the Quick Printer or Line Printer I while 26-1416 is for Line Printer II.... Serial printers requiring RS232C interface can be used with a similar device known as the TRS232. Available from SMALL SYSTEMS SOFTWARE, PO BOX 366, NEWBURY PARK, CA 91320 for \$49 + \$2 shipping.... Dual cassette operation can be easily realized by using the Automatic Dual Cassette Interface which works equally well with either Level I or II. Available from SEL-TRONICS, INC., 721 ELLSWORTH DR, SILVER SPRING, MD 20910 for \$69.95 + \$2 shipping.

If you want to use any of the wide variety of S-100 boards available for other computers, HUM? ELECTRONICS, 1429 MAPLE ST, SAN MATEO, CA 94402 sells two interfaces to the S-100 bus. Prices start at \$115 and a higher priced model can accommodate 16K more of RAM plus both serial and parallel ports. A feature article on it appeared in the July issue of KILOBAUD MICROCOMPUTING.

If you are having trouble using a 40-track disk drive with a Radio Shack expansion box, PERCOM DATA COMPANY, 211 N. KIRBY, GARLAND, TX 75042 has a "data separator" for \$29.95 that is said to be the cure. It is fully assembled, easy to install and can be ordered by calling 800-527-1592. A description and schematic is in the September issue of the CIE TRS-80 BULLETIN available from CIE, BOX 158, SAN LUIS REY, CA 92068.

If you need to test integrated circuits, a device called the 7310 "Interrogator" tests all standard IC's, seven segment LED's and small circuit boards with up to 24 leads or test points. It's \$249 plus \$99 for software and I/O port box for TRS-80's from ENTRO, 1171 BORREGAS, SUNNYVALE, CA 94086....

Radio Shack is now offering an 8-outlet strip with two built-in line filters and master power switch (26-1451) for \$39.... Also, plastic dust covers (26-501) for the keyboard, monitor and one recorder for \$7.95, disk and printer covers for \$5.95 each.... The "legal" lower case mod we reported in the last issue hasn't yet materialized. Radio Shack stores claim they don't know anything about it....

## SOFTWARE & RELATED ITEMS

New software is abundant. Radio Shack has some new entries including some business software costing up to \$200. Budget Management (26-1603) is said to be worth the \$19.95 but we haven't had any feedback on any of the rest.... For those of you ready to make a killing in the stock market with your TRS-80, MAX ULE & CO., 6 EAST 43RD ST., NEW YORK, NY 10017 has announced TICKERTEC-TRS, a custom software package that will allow you to watch the New York and American Exchanges on a real time basis, call up the last 10 trades of 48 or more stocks, be informed when price limits you impose have been reached, monitor reports, volume, etc. You may call (800) 223-6648 for more info on the \$1,000 package.... INTERACTIVE MICROWARE, INC., PO BOX 771, STATE COLLEGE, PA 16801 has a cute game for \$7.95 called "Battlegrid". It's unusual because it allows two players to literally play at the same time using different keys on the ends of the keyboard to fire at targets previously hidden by the other player. They also have a real-time "Lunar Lander" and a "Graphics Interpreter" which aren't bad for \$7.95 each, Level I or II.... "Adventure" is a set of game programs we have heard a lot of good about. Read the review in Sep/Oct 80-US. Each is available for \$14.95 from ADVENTURE INTERNATIONAL, BOX 3435, LONGWOOD, FL 32750....

If games and simulations are your bag but you don't know which are the best buys, invest \$7 in the new publication 80 SOFTWARE CRITIQUE from RICHARD CLOPE, PO BOX 134, WAUKEGAN, IL 60085. The first issue, Oct-Dec 79, contains 50 pages of reviews of 50 different programs and graded in six categories. It looks real good and we hope it continues. Four issues (1 year) is \$24.... If you want a good overall view of software available for the TRS-80, another specialty publication is TRS-80 SOFTWARE SOURCE which comes out 3 times a year from COMPUTERMAT, BOX 1664, LAKE HAVASU, AZ 86403 for \$4 per issue or \$10 per year (\$6 and \$16 respectively outside North America). The latest issue has 115 pages of software listings of 5,000 titles from 380 suppliers cataloged in several different ways.... The 7th edition of Purser's COMPUTER CASSETTES REVIEW is also about 115 pages although most of it is illustrations of screen displays and ads. It contains some casual reviews and covers Pet and Apple computers also in case you are looking for something that is not yet available for TRS-80 and may be convertible. It's \$4 per issue, \$12 per year (\$2 extra per issue outside North America) from PO BOX 466, EL DORADO, CA 95623....

## NEWS ITEMS

The FCC has set limits for EMI radiation from home computers according to ELECTRONIC ENGINEERING TIMES. The TRS-80 wasn't mentioned specifically but it is known to be one of the worst offenders. It isn't known what effect the new regulations will have on existing TRS-80's but you can bet that if it interferes with your neighbor's TV and he complains, you may be required to shut down. The latest units have a new keyboard which appear to have some shielding.

Tom Swalenberg reports that PC '79 in Philadelphia was a good show but the Pope's visit was a tough act to compete with so next year's show is expected to be much better. He noted that some people referred to it as the TRS-80 Microcomputing Show because there were so many there. There was a surprising amount of "computer music" demonstrated, including classical, and most of it was pretty good, too. A lot of disk drives were shown and pricing was competitive. The Light Pens from MICRO MATRIX were a popular item and many new software programs were seen for the first time. Tom's booth, BONZAMA ENTERPRISES, will probably be back next year.

Users report that Radio Shack Expansion Interfaces containing the new board seems to work well. They still have the same catalog number (26-1140) as the old one so, if you plan to buy one, you had better make sure you aren't getting one left in stock somewhere by specifying that you don't want one that needs the buffer cable and DIN cable additions.

Schools all over the country are placing TRS-80's in schools and are looking for Computer Assisted Instruction (CAI) and educational programs. Cotulla, Texas has 25 units in their school, affecting 1 out of every 3 students in grades K-8. They figure the cost over 5 years to be 30 cents per hour per student using a package of 36 tapes available for \$1,000 from the FOUNDATION FOR QUALITY EDUCATION in Dallas. TRS-80's are used in grades K-12 in some Virginia schools and at least one wants to contact other schools or individuals interested in exchanging programs they have developed. Write: EARL R. SAVAGE, CRAIG COUNTY PUBLIC SCHOOLS, PO BOX 245, NEW CASTLE, VA 24127.

Radio Shack's Computer Services has moved to 900 Two Tandy Center, Ft. Worth, TX 76102 and Texas residents now have a toll free WATS line, (800) 772-5914. Outside Texas the number is still (800) 433-1679....

**ANNOUNCEMENT FOR USER GROUPS** (and other interested parties): Radio Shack seems to have a policy which prohibits local stores from getting involved in any way with local TRS-80 user groups, even to the point of not helping them contact each other so they can form one by themselves. If you know of any organized attempt to convince Radio Shack or Tandy headquarters that, from a public relations aspect if nothing else, that it would be in their best interests to lift this restriction from company policy, please contact AL MACINTYRE, 6750 SHENANDOAH, APT. 5, FLORENCE, KY 41042. He has proposed such an attempt and would like to unite with others who are interested.

**HIGH MEMORY OPERATING SYSTEM:** Includes renumber, append, display BASIC variables, list BASIC 1-9 lines at a time, keyboard debounce, works with Level II or Disk Basic. Specify 16K, 32K or 48K. \$14.95 DUANE SAYLOR, 854 EADS CT., NEWPORT NEWS, VA 23663

**12K MORSE CODE TRANSMIT & RECEIVE PROGRAM** for standard 16K Level II TRS-80, no ancillary devices required. 5-25 words/minute, uses cassette ear plug for input (1 volt AC from speaker terminals) and cassette motor control relay for keying a 7406 or Radio Shack 6 VDC keying relay. Auto logbook, prepared messages (CQ, QTH, QSY, QRM, etc.) and auto receive speed adjust control. Pre-publication offer: \$9.95 ppd. cassette or disk. RICHCRAFT ENGINEERING, DRAWER 1065, CHAUTAUQUA, NY 14722 (716) 753-2654

**TRS-80 machine language driver program** for Heath H14 printer using standard Radio Shack RS232 Interface. Control size of print and lines per inch by software. Automatically moves itself to top of memory and protects itself. Compatible with 16, 32 or 48K. Prints the up arrow correctly. \$15 for cassette or disk version. BAF SOFTWARE, PO BOX 5105, VIRGINIA BEACH, VA 23455

**ORIGINAL LEVEL II PROGRAMS** on cassette: **MISS AMERICA NOTEPAD** (\$4) scratchpad for up to 10 lines of 254 characters each for 10 codes. **ADDRESS FILE HANDLER** (\$6) uses two cassettes & printer to store & update unlimited number of addresses in any of 5 modes. **ORDER GENERATOR** (\$6) for catalog mail ordering, manipulates numbers, amounts, subtotals, etc via 11-item menu. All are documented, guaranteed, structured subroutines w/remarks, \$1 off each program over two. G. WAGNER, 1104 ASPEN DR, TOMS RIVER, NJ 08753

**RENUMBER, VARIABLE FINDER, VARIABLE CHANGER** programs in BASIC which append to your program with method provided. **AUTOMATIC TELEPHONE DIALER** uses cassette "remote" plug in series with phone line or \$15 hardware package. **4K OTHELLO** 3-level difficulty, 1 or 2 people. **CHECKBOOK BALANCER** aids end of month chore. \$5 first program, \$3 each additional on same cassette or \$3 each if you supply cassette, \$1 each if you supply an original, usable program (my decision). JACK DECKER, 1804 W. 18th #155, SAUTE STE. MARIE, MI 49783

**LEVEL II PROGRAMMING HINTS:** Graphics techniques, disable keyboard (great for demos, kids can't stop execution), test if key is being held down (great for paddle and doodle programs). 3 program listings to illustrate techniques including DOODLE and ROAD RACE, \$5.00. MIKE CHERTOK, 20 BUTTERNUT DR., PEARL RIVER, NY 10965

**MIND: A Teach Yourself by Computer Course** that teaches you a system for memorizing unrelated information, logical material, how to remember names and faces, better listening skills. **MIND - STEP 1** is 2 computer cassettes, 10 programs, \$24.95. **MIND - STEP 2** is 2 computer cassettes, 9 programs, 1 audio cassette, \$29.95. Both come in vinyl binder with teaching manual. Specify Level I 4K or Level II 16K. Order both, save \$5. P&H \$1.50 each. TYC SOFTWARE, 40 STUYVESANT MANOR, GENESEO, NY 14454

**TBUG:** Powerful M/L monitor allows you to trace, single step and use 6 breakpoints in ROM or RAM. Has all features of TBUG plus block dump to printer or screen, block write, hex math, or change a register pair value directly. Specify 16K, 32K or 48K. \$12.00..... **RELOC:** Relocates any M/L program to a new address in RAM, resolves all memory addressing and option writes the program from new location to tape. \$5.00 R.J. MCINTIRE, 1807 WOMBLE CT., HAMPTON, VA 23663

**WANTED:** (1) Magazine subscribers willing to list TRS-80 articles on forms each month for our master index. (2) Pen pals interested in electronics, healthcare, wargaming, Forth, peeks & pokes, education, business, mach & assy language. (3) Any errors in any TRS-80 related manual for compilation. (4) Buyers for used 4K RAM's and two-chip set of Level I ROM's. Contact Les Logan c/o TCS.

Free ad space is donated by TCS. A small percentage of any profits that result will be appreciated to help continue this service but there is no obligation.

**ANNOUNCEMENT from COTS** (Clearinghouse of TRS-80 Software in Canada): Canadians, you have another source of TRS-80 HW/SW besides Radio Shack. Americans, we want your HW/SW to sell here. Everyone, send mailing address and receive monthly flyer for 1 year FREE. Articles are accepted for publishing therein. COTS, PO BOX 3103, STATION 'D', OTTAWA, ONTARIO, K1P 6H7, CANADA

**BIBLE VERSE STUDY GAME,** list for SASE, tape for \$1. STAN OCKERS, RR#4 BOX 209, LOCKPORT, IL 60441

**QUALITY PRINT-OUTS OF YOUR TRS-80 PROGRAMS:** For documentation, debugging, publication, copyrights, etc. Level I or II up to 48K. Tractor feed, notebook size paper, \$1 per program, \$3 minimum..... **MACHINE LANGUAGE PROGRAMS COPIED:** Only \$1 for 2 guaranteed readable copies, TRS-80 Level II only. Either send a cassette or add \$1.50 for brand new quality data cassette..... All orders shipped same day by first class mail. RON URBASSIK, 13519 CARTER ROAD, PAINESVILLE, OH 44077

**CLUB FORMING IN NORTH-CENTRAL PENNSYLVANIA:** For those located in areas with zip codes of 169 or 177, tentative meeting date is second Monday of each month. Contact MERLE WILCOX, 12 STURRECK ST, WELLSBORO, PA 16901

**FLASH CARD PROGRAM:** Use your own questions and answers with this program to create data tapes of any length on any subject. When played back, a chance to answer is given before the correct answer is displayed. School's open, parents, help your children by letting them play with YOUR toy. \$1 for list, \$2 for tape from CHARLIE CAIN c/o TCS.

**SOFTWARE SOURCE,** published 3 times a year has over 4,000 listings of TRS-80 software from over 250 vendors, cross referenced six ways and includes 7 categories of info on each. Single issue \$4, \$6 outside N. America; year subscription \$10, \$16 outside N. America. COMPUTERMAT, BOX 1664, LAKE HAVASU CITY, AZ 86403

**BABYDUB** copies any program up to 15.5K long, **BABYBUG** is a BASIC program that lets you write machine language. Send SASE for listing of these and info on other FREE programs. **PLAYING GOD WITH LIFE** is only one for sale, \$9. Will also provide free consultation on Level II stuff. DENNIS KITSZ, ROXBURY, VT 05669 (that's full address) or call (802) 485-6112

**NEEDED: LEVEL II 16K X, Y AND BAR GRAPH PROGRAM** to display results on screen, print on printer and store in memory and cassette or disk. Must contain provisions to label axis, list titles and note sources & comments. Application using both RS Line Printer II and 8-1/2" x 11" format would be best. Respond to PETER DALY, SOFTWARE CASSETTES, 430 JEAN ST, MADISON, WI 53703 (608) 251-3155

**PERSONAL ESTATE PLANNING PROGRAM,** Level II 16K cassette and complete documentation, \$19.95. Add \$4 for source. LARRY H. BUSS, 101 SOUTH U ST. APT. 1, LOMPOC, CA 93436

**ARTICLE** on all the possible ways to make cassette programs load reliably and stay that way. \$2 to SCOTT MITCHELL, 346 S. TAYLOR ST, MANCHESTER, NH 03103

**WANTED** - a program to solve Eigenvalue and Eigenvector problems for all real matrices (not just symmetrical matrices). Can be either BASIC or machine language. H. STERNBERG, 1100 PTARMIGAN DR. #6, WALNUT CREEK, CA 94595

**SAVE ON YOUR 1980 FEDERAL INCOME TAX.** Can also be a business opportunity. Send large self-addressed envelope for details. W. MCNEILL, JR., 225 LONGVIEW DR., JEFFERSONVILLE, IN 47130

**Z-80 SOURCE LISTING,** Hangman game for TRS-DOS. Well documented, easily relocatable, structured code. Lots of good ideas. Listing \$3, cassette with both source and object code \$5. CHARLES BUTLER, 1806 ADA, LANSING, MI 48910

**SALE: AXIOM EX-801P MICROPRINTER.** 160 char/sec, software selectable 80, 40 or 20 char/line and reverse printing and bell. Uses 5" electrostatic paper. Includes cable for Expansion Interface. New condition, I just don't need 3 printers. Certified check or money order for \$350 takes it. J. R. REICH, JR., 585 E. MARKET ST., MARIETTA, PA 17547

PUBLICATIONS AND ARTICLES OF INTEREST

**MAGAZINES:** We're looking forward to the first issue of 80-MICROCOMPUTING which is due any time. It will be devoted to the TRS-80 and a one year subscription is \$12 from their SUBSCRIPTION SERVICES DEPT., PO BOX 981, FARMINGDALE, NY 11737.... The November issue of KILOBAUD MICROCOMPUTING had articles on how to make the TRS-80 dial a phone by connecting it to the cassette relay, a review of Apparat's NEWDOS+, and a short text editing scheme. The December issue contained an article telling how to replace the 1.5K resistor at pin 2 of the CRT with a 100 uH peaking coil to get a sharper video display. It was the only TRS-80 article contained in this issue, probably because they are saving them up for the coming 80-MICROCOMPUTING which they will also publish.... Another telephone dialer article appeared in the November CREATIVE COMPUTING along with profiles on Quick Printer II, Level III Basic program and discussions of a Ram Test program and String Graphics. The October issue contained listings for a game and a digital clock using graphics. Steven Gray's column was on INSIDERS newsletter and modifications available from Radio Shack.... BYTE had a good article in October about the Voice Synthesizer and, in November, some news about the FCC and the RFI generated by the TRS-80 and four other computers.... The December INTERFACE AGE had an article on TRS-80 Graphic Codes and a formula for calculating a graphic code.... RECREATIONAL COMPUTING has several TRS-80 listings in the Nov/Dec issue including ones for Bingo, elementary school math and shape recognition for pre-schoolers. Others, like the Ticket Printing program should be easily adaptable to the TRS-80. Don Inman has a good one on adding all kinds of sound effects and music to the TRS-80 with a \$40 "SOUNDWARE" package from CAP Electronics, 1884 Shulman Ave., San Jose, CA 95124.... A directory of affordable printers and discussion of different types is in the Fall issue of ON COMPUTING.... We have heard that POPULAR COMPUTING has ceased publication but haven't confirmed it yet....

**PERIODICALS AND NEWSLETTERS:** The fourth issue of TRS-80 COMPUTING finally came out. Many people are upset over this publication because it is supposed to be monthly but is closer to semi-annual. (Someone wrote in to say he knows the editor and although slow, he is honest, so everyone who subscribed should eventually get all the issues they paid for.) This issue is devoted entirely to PASCAL language.... From the same editor comes the CIE TRS-80 BULLETIN which is more frequent and was free up until the last issue. Now it's free only with a subscription to TRS-80 COMPUTING or a \$2.50 donation to CIE, BOX 158, SAN LUIS REY, CA 92068. The September issue describes (and provides a schematic for) the Percom Data Separator we listed under new products.... MBUG (the Monterey Bay User Group) has a new newsletter editor (Curt Hess, who is doing a great job) and a new address: MBUG, PO BOX 1242, SEASIDE, CA 93955. So all you newsletter editors out there, put them on your list. They recommend the use of Verbatim diskettes for a page full of reasons in their October issue.... NEWSLETTER (an original name) from TEXASOMA MICROCOMPUTER ENTHUSIASTS and WICHITA VALLEY TRS-80 USERS GROUP may be obtained by sending your club's newsletter to J. WESLEY B. TAYLOR, PO BOX 4391, WICHITA FALLS, TX 76308. Their latest contains a very detailed index for your manual, a quick reference for editing, and tips such as this gem: 4K chips may be used in your expansion interface for additional memory. Although the WHEN question comes up with the wrong amount, they claim it works.... Of all the club newsletters we find the OCTUG one the most valuable. The November issue explains unexplainable delays in programs containing DIM statements (see HINTS). If you want to be one of their 700 members, send \$10 to DICK WHITE, PO BOX 653, NORWALK, CA 90650....

**BOOKS:** Z80 PROGRAMMING FOR LOGIC DESIGN (Osborne, 300 pg), Z80 ASSEMBLY LANGUAGE PROGRAMMING (Leventhal, 500 pg) and a series on INTRODUCTION TO MICROCOMPUTERS may be of interest to some of you. The latter is pretty extensive and not limited to Z80. Volume 0 (300 pg) and Volume 1 (400 pg) are softbound while Volumes 2 (1400 pg) and 3 (700 pg) are looseleaf update issues. Write for catalog from OSBORNE & ASSOCIATES, 630 BANCROFT WAY, BERKELEY, CA 94710.... Professional books covering electronics subjects and computers are offered by mail order from JOHN WILEY & SONS, PO BOX 063, SOMERSET, NJ 08873. Specify "professional" series and get a set of 15-day free examination cards.... On less of an engineering level, the 20-page 1980 catalog of SAMS COMPUTER BOOKS is available by writing to HOWARD W. SAMS & CO., 4300 WEST 62ND ST., PO BOX 7092, INDIANAPOLIS, IN 46206. Lots of good buys in there....

A Radio Shack store that hasn't sold many TRS-80's found that some prankster inserted the following line in their demonstration program: 345 CLS:PRINT "THE PROBABILITY OF SOMEONE LOOKING OVER YOUR SHOULDER IS DIRECTLY PROPORTIONAL TO THE STUPIDITY OF YOUR ACTIONS."

HINTS

Don't tie yourself to your computer by idly watching a long program run when you could be doing something else. Use CSAVE "X" as the last statement or whenever an operator input or action is required. Then slip a prerecorded audio tape into the recorder (preferably "When The Saints Go Marching In"), put it in PLAY and unplug the earphone plug. When your presence is required the statement will activate the recorder and alert you even in another room. For continuous operation, add a GOTO back to the CSAVE line.

Avoid BASIC programs with lines having more than 240 characters (including the line number and following space) if you are going to save it to disk in ASCII format. Anything over 240 characters will be chopped off and if it contained any numbers followed by text, it will be interpreted as another line which may replace a valid line.

If you are using EDIT-80, avoid line numbers less than 10 because they will be changed to zero. Also, avoid linefeeds (which are useful for formatting) because programs stored on disk from EDIT-80 will not load back into BASIC.

From October SOFTSIDE: Never turn your system ON or OFF with a diskette in the drive or you might create a pulse at the write head and spoil the diskette. Turn your system on in following order: expansion interface, printer, computer, monitor, and finally the disk drives.

ERRORS

LEVEL II MANUAL - page 8/3: The sample program at the top of the page won't work because a CLEAR command disables an ON ERROR GOTO command. Interchange lines 5 and 10.... page 8/5: The formula for addresses above 32767 is -1\*(65536 - desired address) instead of the formula shown, at least in earlier versions of the book....

DOUBLE PRECISION SUBROUTINE - Line 40100: Change to read Z2=LOG(Z) ; I0=0 ; IFZ < 1 THEN I2=-1 ; Z=1/ZELSE I2=1.... page 3 of the manual: change GOSUB 40400 to read GOSUB 40100....

DOS MANUAL - page 7-74: line 260 ends in garbage but should read ...INPUTLP ; LSETLP\$=MKS\$(LP)

ODD N' ENDS

Canada's COTS organization (see bulletin board) has scrapped their \$24/year newsletter and, instead, plan a free monthly flyer if you will send them your name and address. They are soliciting articles for it plus software and hardware for sale in Canada.... For your friends who think the TRS-80 is just a toy, tell them about Mullett Associates of Los Angeles. They sell a system that makes automatic tests of analog and digital PC boards and the heart of it is a TRS-80 to keep the price down to \$9,000.... If you want to send information from your TRS-80 to another over a modem without the possibility of being intercepted, you need the encoder from Cryptex Corporation of Seattle. Details of the \$300 device are in a story in September 13 issue of ELECTRONICS... Special insurance for home and office computers (and all peripherals) is being offered by Edmund F. Lees Insurance, 413 West Maple Avenue, Merchantville, NJ 08109. Write for details... TRS-80 magazines on cassette have come and gone but CLOAD is still around and still for both Level I and II. Does that tell you anything?....

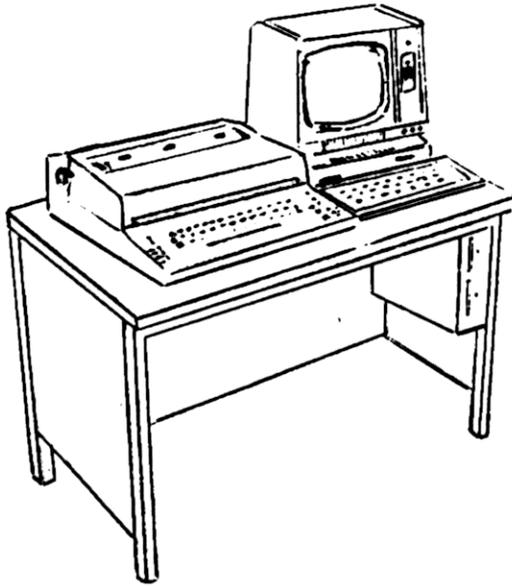
ANSWERS SOUGHT

Apparat's NEWDOS+ sometimes destroys the directory when the DISK FULL message is displayed and not all the files can be read. Supposedly it can be fixed with SUPERZAP but who knows how? MIKE HENDERSON, 1631 MASSACHUSETTS ST., LAWRENCE, KS 66044

INKEY\$ doesn't work after lower case software driver has been loaded. Also, if the lower case software driver is loaded in DOS and BASIC is called, Level II BASIC comes up. Does anyone know why and/or how to fix it? JOHN RATZLAFF, MT. PISGAH ACADEMY, CANDLER, NC 28715

WRAPPING UP

Well, another issue... another year. Thanks to everyone who helped and wrote and made donations to allow us to continue. We apologize for not having space to give credits or use all info sent to us. Working on the TCS project is rewarding and we hope we have been helpful this year. Our newsletter is free and published when we can afford it. The amount we mail depends on the number of flyers we get to cover postage. You are probably already on our rotating mailing list but it will rotate in your direction more often if you are registered with us to indicate your interest. Free registration forms are available on request.



TC-71 SELECTRIC-BASED PRINTERS

NOW AVAILABLE IN THE SOUTHEAST!

ALPHA TECHNOLOGY  
 P.O. BOX 58499  
 RALEIGH, N.C. 27658  
 (919) 755-1175

IBM Selectric typewriters have long been valued for their superior printing and interchangeable type element feature and the extensive IBM engineering insures the highest possible reliability. ALPHA TECHNOLOGY can now offer you an IBM Selectric-based printer in several configurations to meet the user's needs. This high quality printer, manufactured by Terminal Communications, originally sold for about \$4000 because of the cost of the heavy-duty Selectric mechanisms and extensive interface engineering. The typewriter is placed in an attractive desk with the electronics, power supply and cooling fan enclosed in the rear of the unit. Model 745 Selectrics were used in the unit to gain the advantage of heavy-duty clutches and bearings for mechanical reliability. The unit employs the standard Correspondence Code which allows a variety of typing elements to be used for different print styles. The printers were originally used by a finance company chain to generate reports from a remote computer system communicating over telephone lines.

All printers are completely refurbished before distribution. The typewriter as well as the desk is thoroughly cleaned and any worn parts are replaced. The machines are adjusted and lubricated and tested in both local and enter modes.

BASIC REFURBISHED UNIT.....\$750

INTERFACE.....\$150

The interface available may be easily attached to any Centronics parallel output port. A complete choice of interfaces, including RS232 and S100, will soon be available. (Baud rates may be easily set at 75, 134.5, 150, 300, 600, or 1200.)

2K BUFFER BOARD.....\$100

4K BUFFER BOARD.....\$200

(All prices are F.O.B. Raleigh, North Carolina)

DEALER INQUIRIES INVITED