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23513

THE FREE TCS LETTER IS A CLUB PROJECT OF
THE TIDEWATER TRS-80 USERS GROUP

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WELCOME to TCS, the only (now that Radio Shack charges a subscription fee) remaining FREE international publication exclusively for TRS-80 owners. Our last issue was December 1980 so you haven't missed anything since then.

When we first started TCS (now in it's third year) finding a useful TRS-80 article in a magazine was big news. In fact, there were so many computer magazines and so few TRS-80 related articles, the biggest value of this newsletter was alerting readers about which magazines to go out and buy. Today, there are 28 of them that we try to keep track of and it is not easy to do. We are still working toward our index of articles in all of these magazines to provide to clubs for distribution. But coordinating the task and agreeing on just what should be included has still caused the first installment to be overtaken by other events. Meanwhile, there are too many fine articles to report on with the limited space we have in TCS and, since no single magazine is more valuable than any of the others any longer, we will not be summarizing their contents as in the past. We will continue to collect news, hints and new product information from them and club newsletters to pass along to you.

HINTS

The "shielded" ribbon cable used to interconnect a Model I keyboard with an Expansion Interface can be inserted BACKWARDS since neither connector is labeled to indicate which end goes where. The shield (a fine wire mesh covering one entire side of the 40-conductor ribbon cable just under the insulation) is supposed to be "ground" via pin 39 to the keyboard. But if the two connectors are reversed, the shield will instead go to the "reset" line via pin 2 and act as an antenna to pick up electrical noise impulses. Thus, instead of reducing interference, it would have the opposite effect and allow nearby appliances to reset or reboot the system.

The shield is internally connected to the outermost conductor on one (and ONLY one) edge of the cable. When installed between the computer and expansion unit, this edge should be toward the left side of the system as you normally face it. Determine which connector goes to which unit with an ohmmeter. Looking into a connector with the cable exiting downward from the rear, touch one probe to the shield which is normally exposed along either edge of the cable. There will be continuity to the upper left contact on the keyboard's connector and to the lower right contact on the expansion unit's connector. Don't go by any pin numbers on the connectors themselves because they will never match. Radio Shack did not conform to the industry standard numbering system.

Ever need to print a letter on regular stationery with a printer like the Centronics 737 that only accepts pin-feed paper? Get a roll of Scotch brand POST-IT (tm) from an office supply store and use it on the second of three consecutive sheets of fan-fold paper to carry single sheets of paper through the printer. It's like tape except that it easily peels away from paper and is reusable several times.

A handy but often overlooked character string is CHR\$(27) which is an "upward linefeed". One use is with INPUT statements to enter related data on the same line of the video screen. To demonstrate, let a string variable equal a tab of 30 spaces (using a space compression code) plus the upward linefeed with the statement: A\$=CHR\$(222)+CHR\$(27) Then use it inside a FOR/NEXT loop using X for a counter:

```
FORX=1TO5:INPUT"NAME";N$(X):PRINTA$;:INPUT"AGE";A(X):NEXT
```

The upper limit of memory for BASIC programs is determined by the answer to the MEM SIZE? question. Any address higher than the one entered is protected and may be used for machine language routines. That address is stored at locations 16561 and 16562 (40B1 and 40B2 in hex), LSB first. If you need to change it later for some reason without starting over, convert the new address into hex and then each half back into decimal for poking in. For example, suppose you want to reserve a thousand bytes

in a 48K system. The highest possible address is 65,535 so 1,000 less than that is 64,535 or FC17 in hex. FC is 252 in decimal and 17 is 23 in decimal so you would POKE 16561,23 and POKE 16562,252. Then you need to CLEAR 0 (or whatever amount you need for string storage) before the POKE's will have an effect.

Slight differences in Model I Level II ROM's may affect certain programs. For diagnostic purposes, you should know that the following checksums are all valid. ROM "A": AE5D, AE60, or B078. ROM "B": DA84 or DA45. ROM "C": 4002, 40BA, 40E0, 3E3E, or 4006. Does anyone else know of any more?

The command CHR\$(23) puts the video display in a 32 character per line mode. The same thing can be accomplished with POKE 16445,8. To revert to the normal 64 character per line mode, CHR\$(28) will do it and homes the cursor. POKE 16445,0 does the same thing except leaves the cursor where it is.

Everyone with more than one disk drive knows that only drive 0 has to have the DOS system modules. Programs can be stored on diskettes containing only BOOT and DIR when done in drives 1, 2 or 3. But what happens if you only have two drives and one goes to the repair shop? With only one drive, how do you load or run a program on a diskette with NO SYSTEM? For NEWDOS users, the solution is to use the single drive COPY command to get the program over to a "system" diskette by using a "\$" ahead of the filespec.

NEWDOS users: Does CMD"DIR:1" give you the directory on drive 0 instead of drive 1? There is a space missing. Try CMD"DIR :?" and it will work.

To allow Radio Shack (or Microsoft's) Disk Editor Assembler (Model I version) to run under NEWDOS, the following zaps must be made. Using Superzap to EDIT/CMD using DFS command, change:

```
Starting at Sector 26, byte E3:  
FROM: 7E E6 7F 7E 21 FE FF CA 58 78 EE 80 87 DA 5D 78  
TO: 7E 60 69 D6 01 30 01 2B 29 07 30 01 23 18 04 78
```

```
Starting at Sector 20, byte A2:  
FROM: 78 E6 7F C2 28 72 78 EE  
TO: 78 D6 01 30 08 18 04 EE
```

Model III assembly language users may find it useful to know that a jump to 72H or 6CCH does NOT take you back to "READY". The following code will work in either Model I or III and avoids the phoney "OM ERROR" associated with the 1A19H entry point sanctioned by Radio Shack:

```
01181A LD BC, 1A18H  
C3AE19 JP 19AEH
```

New Model III owners may find it handy to know the equivalence of a couple of Model I hints: If both tape and disk I/O routines are built into a program, the right one can be selected automatically by determining whether or not Disk BASIC is being used. On Model III, input from port F0. An FF indicates tape, anything else indicates disk. On Model I, PEEK at location 14317. 0 or 255 indicates tape, anything else indicates disk. If both screen display and printer output routines are built into a program, the right one can be selected automatically by determining whether or not there is a printer "ready" status condition. On Model III, input from port F8 should be a hex 30 if the printer is ready. On Model I, a PEEK to 14312 will return a decimal 63.

When you need to continuously print out information such as mailing labels from an Electric Pencil file, it is handy to be able to set PAGE SPACING to "A0" in the command mode to eliminate page spacing altogether. But in the original versions of Pencil, the lower limit is "A2" and that really screws things up. If you have a disk version it can be easily modified with SUPERZAP. Use the DFS function, specify the filename (usually PENCIL/CMD), and change relative sector E starting at byte 5B (from 20 02 3E 0C FE 02) to 00 00 00 00 FE 00. The change relative sector 15 byte 62 (from 32) to 30.

NEWDOS/80's Disk Basic differs from all others in the way it handles the INSTR function. If the string you are searching for is not found at all in the string that is being searched, NEWDOS/80 returns a "0". All the other Disk Basic's return a "1".

This is our most popular column according to our mail. Since we don't take up space giving credits, please consider this a combined "thank you" from all our readers to those of you (including you other newsletter editors out there) who pass on these "hints". Please, keep it up!

TCS FREE BULLETIN BOARD

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.

LNW-80 COMPUTER PARTS KITS - #1: "Start-up", \$65; #2: IC's (w/o Hi Res Graphics), \$200; #3: IC's (w/ Hi Res Graphics), \$235; #4: IC's (Hi Res Graphics only), \$40; #5: Resistors/Pots, \$10; #6: Caps, \$35; #7: Semi's, \$12; #8: Diodes, \$5; #9: Misc (incl. sockets), \$32; #10: Xfmr, \$22; #11: Package of #2,5,6,7,8,9 above, \$285; #12: Package of #3,5,6,7,8,9 above, \$320; #13: Package of #3,5,6,7,8,9,10 above, \$340; #14: LNW-80 PC Board w/ documentation, \$89; Complete Kit of all the above (#'s 3, 5-10, 14), \$425. Manual alone \$5 (credit toward order of PC Board). TG ELECTRONICS, PO BOX 64068, VIRGINIA BEACH, VA 23464 804/467-2313

COMPUTER PARTS FOR SALE - 16K memory chips for TRS-80, LNW-80 (4116-2, 200 ns.) w/ instr., 8/\$27; 2114L2's, \$3.40; 2708L's, \$4.90; 2716L (12v/5v or 5v only), \$7.40; 2732 (Intel), \$19.95; 74LS244, \$1.00; Z80, \$4.50; many more. TG ELECTRONICS, PO BOX 64068, VIRGINIA BEACH, VA 23464 804/467-2313

4K-LEVEL I OWNERS, UNITE - Upgrade your knowledge instead of your machine. Group newsletter being established. Send self addressed stamped envelope to: ED HARLER, 47 HARDY RD, LEVITTOWN, PA 19056

ATTENTION CANADIANS - The Toronto Microcomputer Users Group is looking for the names and addresses of all EXISTING Canadian clubs or people who would like to form a NEW club in their area. Please write and specify whether yours is EXISTING or PROPOSED. We would like to coordinate and verify by correspondence a MASTER LIST and be able to refer people to clubs in their area. Also, if you are an individual looking for a club, please write. TMUC, BOX 875, POSTAL STATION "A", TORONTO, ONTARIO, CANADA, M5W 1G3

PRACTICAL PROGRAMS FOR MODEL I/III - Programs that help your TRS-80 earn its keep by automating many household activities. Thoroughly debugged, ample documentation, tape or disk, money back guarantee. Introductory Program: MAIL ORDER GENER. Menu driven incl. sort and print. Tape version (500/1500 baud) \$8, Disk version \$15. PRACTICAL PROGRAMS, 1104 ASPEN DR, TOMS RIVER, NJ 08753 201/349-6070

EXATRON STRINGY FLOPPY FOR TRS-80 FOR SALE - \$200. Includes their starter kit (see their ad), extra wafers, and patch to the RS Editor Assembler. Bought 9 months ago. I've gone to disk. JOHN KING, 303 NW 30TH, CORVALLIS, OR 97330 503/757-8535

5-1/4" DISC DRIVE REPAIRS - Pertec FD-200, Shugart SA-400, MPI-51, Tandon. Flat rate of \$35 plus parts. TRS-80 modifications: Uppercase/Lowercase, speedup. Flat rate of \$20 plus parts. ALL SYSTEMS GO, PO BOX 915, 105 W. PLANT ST, WINTER GARDEN, FL 32787 305/877-2830

WANTED - TRS-80 NEWSLETTERS-PUBLISHERS - Would like to exchange TRS-80 newsletters with other user groups. I want to exchange the data on disks so I will not need to rekey info. If your group does or knows of a group that does, please send me address so I can contact them and vice-versa. I will act as clearing house for newsletters on disks. Scripts & EP OK, other word processor send with newsletter data. For fast reply send SASE, sample newsletter, paper or disk. TRS80-ACSCO UG NL, PO BOX 28355, COLUMBUS, OH 43228

SOFTWARE TRADING - I have many original programs (utility, music, business, scientific) which I'd like to trade for similar programs of yours. Send a SASE and list of program topics you would be interested in as well as programs you have to trade. MARK SAWUSCH, 3555 SKYLINE DR, JENSEN BEACH, FL 33457

SCHEMATICS FOR SALE - I have quite a few hours wrapped up in producing drawings (not hand drawn) of these well-known accessories for the TRS-80 that had part numbers of components removed. I'll share them with you for: \$3 for what I will call a D/A converter (music), \$3 for an adapter to a popular children's educational toy (speech), and \$5 for a device that provides about twice as much storage on disks. Also, I would like to advertise my capability to convert IBM cards and paper tape to disk or tape (TRS-80 or modem tones). GEORGE KOWALSKI, 1333 HOLMES DR, COLORADO SPRINGS, CO 80909

SACRIFICE - CENTRONICS 779 printer with tractor feed, used 3 times, complete with cable - just \$795. MERIT INDUSTRIES, 119 SERENADA DR, GEORGETOWN, TX 78626 512/863-8104

2 STUDENT TRS-80 COMPUTER CLUB wants to correspond with other Middle/Jr. High and High School computer members and sponsors to share ideas and projects. Members range from 6th grade to adult, but are mostly around 9th grade. AUGUSTA STUDENTS TRS-80 COMPUTER CLUB (ASTCC), PO BOX 2692, AUGUSTA, ME 04330

WANTED - I want to expand to 32 or 48K without purchasing an expansion interface or "over-\$50" circuit board. Does anyone want to sell a working expansion unit (homebrew?) or low cost (\$5-\$10) PC board that could be used to expand memory without providing other unnecessary functions? I'm open to any low cost solutions including used equipment, etc. JACK DECKER, 1804 W. 18TH ST, LOT #155, SAULT STE. MARIE, MI 49783

ENVIRONMENTAL ENGINEERING for the TRS-80, disk and tape systems. Programs consist of chemical element data base, water waste treatment, design and calculations, custom waste treatment plant performance programs and many others. Inquiries welcome. ENVIRONMENTAL SOFTWARE, BOX 374-B, COLUMBIA, NJ 07832

WORD PROCESSOR - PERSONALIZED FORM LETTER PRINTER. Written in BASIC for the TRS-80 Model I. Program adds addresses from separate file to text and inserts first name from address into letter body. Global word search and/or replace. Has caps-lock, overstrike, and will move words between lines. Will delete, replace, insert, move, center or right justify lines. BASIC-like line edit, save text or address files to tape or disk. Specify system (16K has WP only). Any version \$10 on tape, \$12 on disk. DELMAR HINRICHS, 2116 SE 377TH AVE, WASHOUGAL, WA 98671

MAILING LIST/DATA PROGRAM - Model I or III, 16K-48K, tape or single disk system. Extremely flexible program designed for management and printing of one or two across (specify version when ordering) mailing lists or labels and associated data. Sorts on ID#, Name or Zip, locator function keys on any character or term desired. Supports 2 or 3 line addresses and 3 data lines for each name entry. Allows addition, deletion and modification of listings and data. Cassette \$14.95, Listing \$12.95 DAVID CROCKETT, PO BOX 1221, ST. ANN, MO 63074

YAGI ANTENNA DESIGN PROGRAM - 2 to 8 elements, frequency, 16K Level II, \$5.95 ART BOSSHART c/o TCS (Ed. Note: When received, this ad contained Art's Key West address. He is known to have moved to Pensacola so we will forward any mail when we learn the new address.)

SMALL HOME-BUSINESS PACKAGE of 3 programs with simple documentation designed for the small home business entrepreneur (16K & printer required, no disk needed). 12-COLUMN LEDGER for simple income and expense bookkeeping to conform to basic IRS requirements. SPEED-LETTER generates quick letters up to 150 lines, supports lowercase. TOLL-CHARGE displays duration and costs of phone calls in real time as they are being made. All 3 guaranteed to load, \$19.95 (plus \$1.20 CA res. or \$2 outside USA). BLECHMAN ENTERPRISES, 7217 BERNADINE AVE, CANOGA PARK, CA 91307 213/346-7024

MODEL II USERS - We will act as a clearing house for all TRSDOS 2.0 SVC's, programming "tricks", and BASIC memory map info. Submissions should include listings in 80 column format, REM as much as possible, explain purpose, give an example, identify variables passed. All those published will bear your name or company, if not original please indicate and give source if known. If submitted on disk it will be returned after transfer. PETE CHARLTON, 491 ELBOW CT, WEATHERFORD, TX 76086

AMINOGLYCOSIDE DOSING PROGRAM for the TRS-80, 16K, L2, Model I or III. Program estimates dosage of four aminoglycoside antibiotics: amikacin, gentamicin, kanamycin, and tobramycin. Program enables pharmacokinetic drug consults utilizing standard one-compartment pharmacokinetic equations. Dosing interval and elimination constant is dependent on estimated creatinine clearance. Documentation and reference provided. \$29.95 from J. A. BUTH, 1202 FOX ST, BOSSIER CITY, LA 71112

*** NOTICE ***

Our next issue of TCS is planned for June or July. The current circulation of 6,000 will not be permitted to increase (due the workload on our volunteers) unless an affordable way can be found to have them printed, physically assembled and distributed for us. Any suggestions will be welcomed.

If your company would like to advertise with us, please write to reserve space and/or receive rates (which we are attempting to lower).

HARDWARE NOTES

The TC-8 "Poor Man's Floppy" high speed cassette interface has been around awhile but our club recently had a demonstration of it and it was very impressive. Programs saved in TC-8 format load reliably about 5 times faster (see review in June 1980 80-Microcomputing). Kit \$90, assembled \$120 from JPC PRODUCTS, 12021 Paisano Ct, Albuquerque, NM 87112 505/294-4623. A recently received letter dated January 16 to user groups offers MPI single sided 40-track drives with case & power supply for \$285 and \$275 for ten or more. Bare drives for \$225. For more info call ACCESS UNLIMITED toll free at 1-800-527-4196. The original \$250 MICROCONNECTION direct connect modem has been improved (see New Hardware Products below). So B.T. ENTERPRISES, 171 Hawkins Rd, Centereach, NY 11720 516/981-8568 wrote that they are offering the original version for \$100 discount, \$150 plus \$2.50 S&H complete. First come, first served while they last.

NEW HARDWARE PRODUCTS

NOVATION, maker of the CAT modem (also sold by Radio Shack under their label as the Telephone Interface II), has just announced their new auto-answering direct connect modem called the AUTO-CAT. It's FCC approved, 0-300 baud, will operate in either full or half-duplex mode and includes both local and remote loopback test functions. It will be priced at \$249. Call 213/996-5060 for more info. DEVELOPMATE 81 is a \$329 system that turns the TRS-80 into a Z80 Development System according to announcement in March 16 issue of EET. Call ORION INSTRUMENTS in Woodside, CA at 415/851-1172 for details. A data acquisition and control interface for TRS-80's allows input of temperature, pressure, voltage, etc., for \$59.50 and a complete analog input subsystem with power supply & cables sells for \$295. Contact CONNECTICUT microCOMPUTER in Brookfield, CT at 203/775-4595. A Bus Expander by PERCOM DATA COMPANY in Garland, TX is meant to give the TRS-80 COLOR computer an SS-50 bus compatibility for "serious" applications. Their toll free number is 1-800-527-1592. A toggle switchable WYE can interface two printers to one computer or vice-versa and features bi-directional electronic switching on all 34 lines. The \$99.95 unit will work on Model I, II or III computers or any Centronics compatible device. LORDS SMALL SYSTEM DESIGN, PO Box 99, Port Angeles, WA 98362 206/457-3064. Double density for Model I users is only \$149 using the LNDoubler from LNW RESEARCH CORP., 14661-C Myford Rd, Tustin, CA 92680 714/552-8946. With DOSPLUS 3.2D the price is \$175. MIPLLOT by Watanabe is a compact X-Y plotter which has impressive specs according to ads. It prints and plots up to 360mm by 260mm area with 0.1mm programmable step sizes using replaceable fiber tip pens in red or blue. Plotting is done with a strobed 7-bit parallel ASCII code that interfaces to TRS-80's. Price is about \$1,100 range. More info from VIRGINIA MICRO SYSTEMS, 14415 Jefferson Davis Highway, Woodbridge, VA 22191 703/491-6502. The MDX series of Interface Expansion boards include standard circuits (you supply parts) for extra memory, clock, dual cassettes, disk (one version), and both serial and parallel ports. The twist is that additional provisions are made for direct connect phone modem and jumper selected 2K or 4K EPROM's in high memory. Price is \$74.95 (\$10 less non-disk version) or \$5.95 for manual (refundable w/order). Shipping \$3, 5% Tax Texas res. MICRO-DESIGN, PO Box 18054, Austin, TX 78760 512/458-2937. PEEK-80 is a special peak reading voltmeter that lets you set and monitor the best loading level of cassette tapes, \$49.50. Includes a calibration tape and adjustment tool for precise azimuth alignment of head. Special digital cassettes and duplication services available. Detailed info from: COOK LABORATORIES, INC., 375 Ely Ave, Norwalk, CT 06854 203/853-3641. The latest and most sophisticated interface for IBM Electronic Typewriter models 50, 60 or 75 was announced February 17 by MEDIAMIX, PO Box 67B57, Los Angeles, CA 90067 213/475-9949. It features a Z80, a 2K text buffer and redefinable ASCII to IBM control codes for access to underlining, tabbing, and centering without having to modify the word processing program. The name EXPAND-O BOARD and the outline in their magazine ads suggest a fairly large "me-too" expansion unit at first glance. But it is actually a very handy, palm-sized, "multiple outlet" for your expansion port. We find ours very useful. It is easily modified to provide three printer ports in parallel. The \$29.95 price (\$1.50 shipping, 4% tax in MI) now includes the \$12 cable that was extra in ads. STERLING COMPUTER PRODUCTS, 36811 Lodge Dr, Sterling Heights, MI 48077 313/264-5704. The ISO-3 SUPER ISOLATOR (\$85.95) from ELECTRONICS SPECIALISTS, 171 South Main St, Natick, MA 01760 617/655-1532 contains three individually dual-PI filtered AC sockets. It is now joined by the ISO-11 which has two filtered banks of three sockets each plus spike and surge suppression for \$94.95.

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////// You've heard about THE CONNECTION, a direct connect modem for the TRS-80 Model I from THE MICRO-PERIPHERAL CORP, 2643 151st Place N.E., Redmond, WA 98052 206/454-7544. There are now versions for the TRS-80 Model III and TRS-80 COLOR computers as well as ATARI, APPLE, and other computers with RS-232. Prices are \$199.50 and options allow use with European standards (\$29.95) and Autodial and Autoanswer (\$79.95).

SOFTWARE NOTES

The Microline 80 and Epson MX-80 printers are both very popular printers because of their programmable character sizes and ability to print TRS-80 graphics. They are particularly popular in our local club because some of the print control codes are common to both printers. This assures a lot of software compatibility among members, even with pencil files of disk users who have some unique zaps developed locally. These zaps allow unlimited use of specially-formatted printer control codes to be inserted in the text and saved with it on disk. As they are encountered during the printout operation, they are converted to the appropriate non-printable control codes required by the printer to change character size and/or lines per inch. Only the program's page length function is disabled (a minor inconvenience) during the time this feature is used but it isn't usable anyway if BASIC must be used to reprogram the printer for a line in the middle of a page. That requires reloading of both pencil and it's file, resetting it's print values, repositioning the cursor, and repeating the process all over again every time print size is to be changed. Inquiries received about this subject will be forwarded and if documentation in a pencil file is preferred, a \$20 bill along with your diskette will probably get quicker attention. The new address for SELF-HELP SOFTWARE is 404 N. 9th, Keokuk, IA 52632 319/524-5673. The founder, Paul Goedicke, is undertaking an "educational software development project" and is seeking to correspond with educators and programmers in this field. Contact him for details. Free downloading of ORCHESTRA-80 music files now available on MICRONET 70110,503 and a half dozen other bulletin boards. See SOFTWARE AFFAIR ad on page 263 of April 80-Microcomputing. In the December 80 TCS, we ran a joke about High Speed Graphic Craps and shortly thereafter received a program by that name in the mail from J/C ENTERPRISES, Box 441186, Miami, FL 33144. They saw the joke and enjoyed it so they thought we would enjoy a copy of the \$10 program. We did. Also included was several pages of other software they have including a RADIO AMATEUR'S QSL FILE for \$10, a SECURITY AUDIT inventory program for \$20, and a GRAPHIC MATH REVIEW AND TRIANGLE SOLUTIONS program that explains and solves logs, ant-logs, square, cube, nth roots, exponentials, exponents, transcendental functions and converts decimal degrees or degrees/ minutes/ seconds. It is \$20 and is available in Spanish language for \$25. ////

NEW SOFTWARE PRODUCTS

LDOS is now on the street. Essentially, LDOS does what VTOS 4.0 was supposed to do plus some more. It has increased LIB functions, an enhanced editor assembler, single drives with dual heads will be able to backup side 1 to side 1, and more. The 245 page manual is said to be very good and courteous, helpful technical assistance is available via a toll free number (we tried it and it's operational). A series of Model I programs on tape for loading to disk are \$19.95 each postpaid from DATA ASSOCIATES, Box 882, Framingham, MA 01701. They make are used to protect programs by adding serial numbers and making them hard to list, list programs as formatted documents, shorten programs by removing unnecessary bytes, add hard copy option to existing programs, and convert numbers to other bases. Write for details. GENOF (General Quartic Formula) will solve for roots of a fourth degree equation with real coefficients. BODE ANALYSIS will do a frequency domain analysis for inputted transfer function in the pole-zero format. SPDES is an interactive program for design of small signal gain RF transistor amplifier circuits. Prices vary with options from \$15 to \$50. For further information and detailed descriptive literature contact KASK LABS, 1207 E. Secretariat Dr, Tempe, AZ 85284. TASMON is a new monitor by The Alternate Source, those people who cater to serious Z80 programmers. It is fully relocatable, disassembles with labels, interfaces with user routines, continuously displays registers, and has many other sophisticated features like search, address computing and single stepping. Also available is a new keyboard editor called KBE which incorporates full screen editing operable in BASIC, EDTASM, NEWDOS, TRSDOS 2.3, VTOS and DOUBLEZAPII. It retails for \$39.95 on disk with user manual. It features programmable keys and a driver that provides keyboard debounce, auto repeat, printer echo, and lower case. Samples and further information available from THE ALTERNATE SOURCE, 1806 Ada St, Lansing, MI 48910 517/487-3358.

4MHZ, DOUBLE DENSITY, COLOR & B/W GRAPHICS. . THE LNW80 COMPUTER



When you've compared the features of an LNW80 Computer, you'll quickly understand why the LNW80 is the ultimate TRS80 software compatible system. LNW RESEARCH offers the most complete microcomputer system at an outstanding low price. We back up our product with an unconventional 6 month warranty and a 10 days full refund policy, less shipping charges.

LNW80 Computer \$1,200.00
 LNW80 Computer w/B&W Monitor & one 5" Drive \$1,664.00
 All orders must be prepaid, CA residents please include 6% sales tax.
 Shipping and handling charge of \$15.00 must be included with every order.
 * TRS80 Product of Tandy Corporation.
 ** PMC Product of Personal Microcomputer, Inc.

COMPARE THE FEATURES AND PERFORMANCE

FEATURES	LNW80	PMC-80**	TRS-80* MODEL III
PROCESSOR	4.0 MHZ	1.8 MHZ	2.0 MHZ
LEVEL II BASIC INTERP.	YES	YES	LEVEL III BASIC
TRS80 MODEL I LEVEL II COMPATIBLE	YES	YES	NO
48K BYTES RAM	YES	YES	YES
CASSETTE BAUD RATE	500/1000	500	500/1500
FLOPPY DISK CONTROLLER	SINGLE/DOUBLE	SINGLE	SINGLE/DOUBLE
SERIAL RS232 PORT	YES	YES	YES
PRINTER PORT	YES	YES	YES
REAL TIME CLOCK	YES	YES	YES
24 X 80 CHARACTERS	YES	NO	NO
VIDEO MONITOR	YES	YES	YES
UPPER AND LOWER CASE	YES	OPTIONAL	YES
REVERSE VIDEO	YES	NO	NO
KEYBOARD	63 KEY	53 KEY	53 KEY
NUMERIC KEY PAD	YES	NO	YES
B/W GRAPHICS, 128 X 48	YES	YES	YES
HI-RESOLUTION B/W GRAPHICS, 480 X 192	YES	NO	NO
HI-RESOLUTION COLOR GRAPHICS (NTSC), 128 X 192 IN 8 COLORS	YES	NO	NO
HI-RESOLUTION COLOR GRAPHICS (RGB), 384 X 192 IN 8 COLORS	OPTIONAL	NO	NO
WARRANTY	6 MONTHS	90 DAYS	90 DAYS
TOTAL SYSTEM PRICE	\$1,664.00	\$1,840.00	\$2,187.00
LESS MONITOR AND DISK DRIVE	\$1,200.00	\$1,375.00	---

LNW80

- BARE PRINTED CIRCUIT BOARD & MANUAL \$89.95

The LNW80 - A high-speed color computer totally compatible with the TRS-80*. The LNW80 gives you the edge in satisfying your computation needs in business, scientific and personal computation. With performance of 4 MHz, Z80A CPU, you'll achieve performance of over twice the processing speed of a TRS-80*. This means you'll get the performance that is comparable to the most expensive microcomputer with the compatibility to the world's most popular computer (TRS-80*) resulting in the widest software base.

FEATURES:

- TRS-80 Model I Level II Software Compatible
- High Resolution Graphics
 - RGB Output - 384 x 192 in 8 Colors
 - NTSC Video or RF MOD - 128 x 192 in 8 Colors
 - Black and White - 480 x 192
- 4 MHz CPU
- 500/1000 Baud Cassette
- Upper and Lower Case
- 16K Bytes RAM, 12K Bytes ROM
- Solder Masked and Silkscreened

LNW SYSTEM EXPANSION

BARE PRINTED CIRCUIT BOARD
 AND MANUAL \$69.95
 WITH GOLD CONNECTORS \$84.95

The System Expansion will allow you to expand your LNW80, TRS-80*, or PMC-80** to a complete computer system that is still totally software compatible with the TRS-80* Model I Level II.

FEATURES:

- 32K Bytes Memory
- 5" Floppy Controller
- Serial RS232 120ma I/O
- Parallel Printer
- Real Time Clock
- Screen Printer Bus
- On Board Power Supply
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KEYBOARD

LNW80 KEYBOARD KIT \$84.95

The Keyboard Kit contains a 63 key plus a 10 key, P.C. board, and remaining components.

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 CORPORATION
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- Assembled and Tested \$149.00

Double-density disk storage for the LNW Research's "System Expansion" or the Tandy's "Expansion Interface". The LNDDoubler™ is totally software compatible with any double density software generated for the Percom's Doubler***. The LNDDoubler™ provides the following outstanding features.

- Store up to 350K bytes on a single 5" disk
- Single and double density data separation
- Precision write precompensation circuit
- Software switch between single and double density
- Hardware override into single density only
- Easy plug in installation requiring no etch cuts, jumpers or soldering
- 35, 40, 77, 80 track 5" disk operation
- 120 day parts and labor Warranty

*** Doubler is a product of Percom Data Company, Inc.

DOS PLUS 3.20 . . . \$95.00 . . . With LNDDoubler . . . \$175.00

Micro Systems software's double density disk operating system. This operating system contains all the outstanding features of a well developed DOS, with ease in useability.

LNW DATA SEPARATOR

Assembled and Tested \$17.95

The LNW Data Separator provides you with a reliable and inexpensive means of solving your disk data read error problems for your 5" single density drives. Compatible with both the LNW System Expansion and Tandy's Expansion Interface. Some soldering is required.

CASE

LNW80 CASE \$84.95

The streamline design of this metal case will house the LNW80, LNW System Expansion, LNW80 Keyboard, power supply and fan, LNDDoubler™, or LNW Data Separator. This kit includes all the hardware to mount all of the above. Add \$12.00 for shipping

PARTS AVAILABLE FROM LNW RESEARCH

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6 chip set	\$26.00
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16 chip set	\$64.00
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LNW80 Transformer LNW80-3	\$18.00
LNW80 Keyboard cable LNW80-4	\$16.00
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System Expansion Transformer	\$19.00
Floppy Controller (FD1771) and UART (TR1602)	\$30.00

VISA & MASTER CHARGE ORDERS & INFO. NO. 714-552-8946
 ACCEPTED Add \$3.00 for shipping SERVICE NO. 714-641-8850

We've learned one of the secrets the regional repair center uses to fix computers. If the symptom is that the computer comes up with stupid wrong answers when doing math problems, they just increase the "brilliance" control (located next to the contrast control). That's news to us.... As far as the weather outlook goes, we are told that on a clear disk, you can seek forever.... And in sports, the latest game being played is called "VTOS". According to what we've read in magazines and other newsletters, the object is to make it do something useful. (If you don't own VTOS you can still play the game by going into the kitchen and peeling an onion. Just like debugging VTOS, the longer it takes, the more you cry.) It's release several months ago was timed so that the most persistent users would finally throw in the towel on or about April Fool's Day.

IN OTHER NEWS...

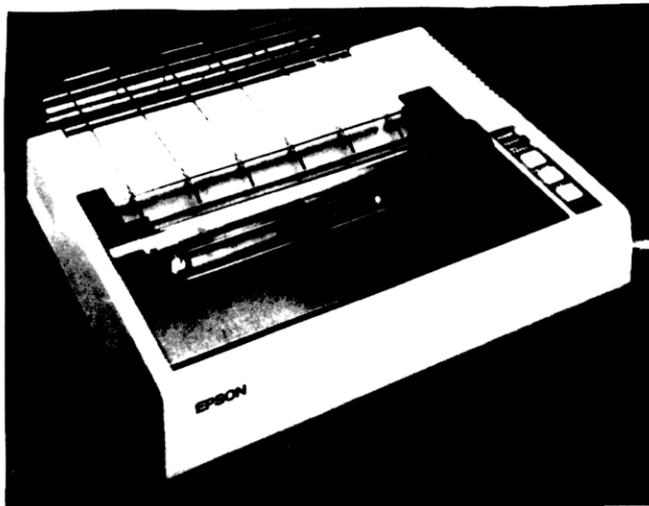
NOVATION, INC., maker of the famous **CAT** modem supports a free-access computer information service 24 hours a day, seven days a week. Included in the 18-item menu is information about modems in general (and theirs in particular including prices and the 18 pages from their manuals), a terminal/modem/printer test routine, a glossary of communication terms, electronic mail (not implemented when we called last night), and a directory of over a hundred public access and bulletin board telephone numbers (updated monthly). The system is on 300 baud at 213/881-6880 in Tarzana, California. When the welcome message, "LOGON PLEASE", comes up, type in the word CAT. According to Ma Bell's commercial on TV last night, we can call anywhere in the country after 11 PM for \$3.44 for 20 minutes. **TANDON MAGNETICS** (who licenses their dual head design to Shugart and Hewlett Packard and makes some of Radio Shack's drives) went public last month for \$16 a share. Their sales in 1980 was \$22 million and they are expected to introduce an 8" floppy this year. Not to be outdone, **MPI** will probably go public also. They plan to introduce a 5-1/4" Winchester disk as well as an 8" floppy and they are planning a joint venture to make minifloppies in Singapore with heads from their present supplier Data Magnetics Corp in Hong Kong. With all the increase in drive business, it is logical that **ERBATIM** has forecast that their sales will increase at a

31% annual rate for the next five years. **CENTRONICS** wishes it could say the same. They reported a loss of \$8 million in the last quarter and are suing Integral Data Systems (maker of Paper Tiger) for theft of trade secrets. Also, **APPLE** has overextended itself after going public recently and sensational stories of growth. The fact is they just had to lay off 40 people. And if you like good soap opera, catch the latest stories about **COMMODORE** as reported in the March 16 issue of Computer Systems News. After firing the inventor of the PET computer last September, they are now suing for \$8.5 million and trying to stop him from starting a business called **SIRIUS SYSTEMS TECHNOLOGY**. (Sound like a familiar name? TCS has received several letters of complaint about delivery from a company simply called SIRIUS SYSTEMS). The founder of **SHUGART ASSOCIATES** who got run out of his own company and started **SHUGART TECHNOLOGY** has, for some reason suddenly, changed it's name to **SEACATE TECHNOLOGY**. They are working on a 14 Megabyte winchester drive. By the way, if they recommend **DYSAN** media it's because Dysan owns a third of the company. **RADIO SHACK** has signed a marketing agreement with **EDUCATIONAL TESTING SERVICE** of Princeton, New Jersey to offer Model II's to universities.

On the technology front, here is an update on a story reported years ago in Electronic Engineering Times about an the **IBM** "golf ball", a computer so-dubbed because of it's small size. Instead of having to wait until the year 2,000 it now seems feasible by 1986 according to recent reports. This marvel will measure 18 x 20 x 41 millimeters and contain 5,000 circuits plus 400 Kbits of RAM with a 2 nanosecond cycle time. I/O will be via fiber optics. There will be no real savings in size or power consumption however since it will use Josephson Junction technology which requires cryogenic cooling to near absolute zero in order to obtain the 10 picosecond switching time. Later, the plan is to create a larger version (about 15 square centimeters) that will contain 300,000 circuits, 256 Kbytes of cache RAM and 64 Megabytes of main memory. That's about equal to an IBM 3033 except 50 times faster. Closer to home (but not by much) is the news that the first commercial version of flat screen TV is being sold by **SINCLAIR**. It's only a 3" screen but it paves the way for larger versions which would make it possible to put an entire computer, 12" display and all, in a regular size briefcase.

J H SUPPLY CO. INC.

The new MX-80 is truly a remarkable printer. The performance and quality for the price cannot be matched. Now the hobbyist can afford a dot matrix fast, very high quality printer. This is an example of the Emphasized style. This style is very good for letters and correspondence. The printer can print at 5, 8.25, 10 and 16.5 characters per inch. This is an example of 10 CPI. The MX-80 can print the TRS-80 graphics. The Centronics interface matches the TRS-80 printer port or connect the MX-80 to the TRS-80 keyboard with an interface. The MX-80 can also interface other computers.



This is an example of the compressed character style and compressed line style. This style is very good for listing programs, listing accounting number columns and to provide more words on a sheet of paper. The MX-80 is a fully loaded printer at a bare bones price. Use one of the word processor programs such as Scripsit and you have a very powerful system. You may find it easier to use the computer than to hand write a letter. The MX-80 manual was authored by David Lien and is very easy to understand. This manual helps anyone to fully utilize the many features of the MX-80.

The Epson recommended list price of \$645 is a bargain and lower than the comparable other brands by hundreds of dollars. However, ask J H SUPPLY CO. INC. and you will find a bargain you cannot beat. Send the type of computer you have for a personal quote. The MX-80 can be used with RS-232 and IEEE-488 by adding a simple to install interface. The MX-80 can also be used with the TRS-80 keyboard (You don't have to have the Expansion Interface). Send the type of computer you have and we will send more information and a price you can NOT beat.

J H SUPPLY CO. INC., 1631 Ozark Drive, Lee's Summit, MO 64063.

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4 Disk Drive Cable	39.00

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Centronics 730-1	599.00
Diablo 630	2495.00
Epson MX 80	Call for price
Okidata Microline 8000
Okidata Microline 82	729.00
Okidata Microline 83	999.00

MISC HARDWARE

Expansion Int. TRS-80(Ok)	269.00
Novation Cat modem	159.00
16K Memory Kit	49.00
Leedex Monitor	119.00
Printer Cable for above	49.00
ISO- Isolator	54.00
AC LINE FILTER	24.00

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Scotch -box 10-5 1/4	27.00
Memorex-box 10-5 1/4	22.00
Plastic Storage Box	5.00

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NEWDOS by APPARAT INC	49.00
NEWDOS+ by APPARAT INC	99.00
NEWDOS 80 by APPARAT, INC	149.95

BUSINESS SOFTWARE FOR THE TRS-80* BY SBSG

Free enhancements and upgrades to registered owners for the cost of media and mailing. 30 day free telephone support. User reference on request.

Fully Interactive Accounting Package, General Ledger, Accounts Payable, Accounts Receivable and Payroll. Report Generating.	
Complete Package (requires 3 or 4 drives)	\$475.00
Individual Modules (requires 2 or 3 drives)	\$125.00
Intelligent Terminal System ST-80 III:	\$150.00
File Management System:	\$ 49.00
Sort-80	\$ 59.00
Mail-80	\$ 69.95

FINE PRINT

*TRS-80 is a Tandy Corporation trademark. Use of above operating systems may require the use of Radio Shack TRS-DOS. Radio Shack equipment subject to the will and whim of Radio Shack.

ORDERING INFORMATION

We accept Visa and MasterCard. We will ship C.O.D. certified check or money orders only. Massachusetts residents add 5 percent sales tax.

The company cannot be liable for pictorial or typographical inaccuracies.



INTEGRATED UTILITY PACKAGE

"Very powerful, underpriced, a must buy!"
 Marcia Kalish, OCTUG Newsletter, May, 1980

"Keyplus is terrific... an incredible program."
 James Joachim, North Hollywood, CA.

"Thank you for your fantastic utility program."
 Mark C. Wehmhoefer, Chicago, IL.

"Makes the TRS-80 that much more versatile."
 Carl Pawl, Santa Monica, CA.

Keyplus is a powerful collection of utilities for the TRS-80. Routines can be enabled whenever the TRS-80 accesses the keyboard. A partial list of utilities includes:

AUTO REPEAT—Allows you to repeat a key simply by holding the key down. This is a must when editing BASIC programs.

LOWERCASE VIDEO—If your TRS-80 has a hardware modification installed for lowercase video, Keyplus will add the software needed to make it work.

BASIC SHORTHAND—Keyplus generates BASIC key words (GOSUB, INPUT, STEP, etc.) in a single key stroke. You have the option of having Keyplus print trailing blanks when practical, adding to the appearance of the listing.

RESTORE LOST BASIC PROGRAM—Ever NEW a program only to realize you did not record it? Two key strokes and you've got it back!

LOWERCASE WITHOUT SHIFT—Keyplus lets you generate lowercase from the keyboard without depressing the SHIFT key.

DIRECT KEYBOARD ENTRY OF GRAPHICS—Type graphic strings directly from the keyboard. This is the easy way to create BASIC programs with super fast graphics.

USER DEFINABLE STRINGS—Two user definable strings up to 32 characters long can be generated in a single key stroke. With this feature redundant input does not have to be retyped.

KEYBOARD DEBOUNCE—(LV. II, 16K version only) Keyplus cures debounce problems completely.

AUTO INPUT—(Disk version only) Allows you to define a string, save the string onto disk, and then recall the string, fooling the computer into thinking the string is being typed from keyboard. This is extremely powerful. For example, you can enter BASIC, set memory size, reserve file buffers, turn off interrupts, run a program, respond to questions asked by the program, etc., automatically from power up or from the DOS READY prompt.

SAVE KEYPLUS—(Disk version only) You can use this routine to allow Keyplus to be initialized with any combination of routines enabled or disabled. In addition, your user definable strings can be saved to disk!

Disk Keyplus comes on cassette with both the 32K and 48K versions recorded twice. The documentation gives detailed information on loading Keyplus to diskette.

TRS-80 is a registered trade mark of Tandy Corp.

SJW, Inc., PO Box 438, Huntingdon Valley, Pa. 19006

Circle one: Lv.2 16K \$14.95 Disk 32-48K \$19.95
 Circle one: VISA MASTER CARD Check Money Order
 Pa. residents add 6% sales tax.

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FIG is the **FORTH Interest Group** that now has over 2,500 members in all 50 states and 34 countries. There are currently 15 chapters and they have a publication called **FORTH DIMENSIONS** which will be sent complimentary to other newsletter editors. Source listings and user manuals are available for several computers with more being developed. Memberships are \$12 per year (\$24 Foreign). Their address is PO Box 1105, San Carlos, CA 94070 415/962-8653. **////** A 200-page **SOFTWARE VENDOR DIRECTORY** listing over 1,000 vendors and over 4,000 products (for computers in general) is available for \$57.95 or with a one-year update subscription for \$100 from **MICRO-SERVE, INC.**, 250 Cedar Hill Ave, Nyack, NY 10960 914/358-1340. **////** There is a minor typo error on **LNW Expansion Interface** schematic S-22103-2: Pin 22 of the UART is shown as **THRL**, it should be **THRE** as shown on the 1602 data sheet included in the manual. Also, if your board is a **Rev. 3**, you should have received a notice that pin 29 of the printer port J5 needs to have it's trace cut so that it is not connected to anything. If you buy a used board from someone make sure this is done. **////** We haven't had many new requests to be on our **PEN-PAL** list lately but we are getting ready to update it **is so here is your chance if you're not already on it.** Be sure to state the category (ies) of your special interest. Abbreviate if possible. Meanwhile, we will mention this one reader who didn't know about our list but wants to hear from anyone interested in darn near anything that has to do with a Level II disk system. He is an Austrian by birth and sounds like any other normal electronics and computer hobbyist according to his two-page letter except he has lived all over the world. His interest is programming languages, operating systems and machine language and wants to learn about CP/M. Also wants to hear from someone who uses the **Mikron Mapper I and II** or the **Freedom Board T8/OS**. Write to **J. LEHNER** c/-S.P.A., Apt. 191 EL TIGRE, EDO. ANZOATEGUI, VENEZUELA. **////** If your club isn't receiving the **COMPUTERTOWN, USA** news bulletin about getting kids involved with computers, you can get on their list by writing them at PO Box E, Menlo Park, CA 94025. **////** Are you the proud owner of a TRS-80 Pocket Computer? If so, you may be interested in knowing that there is a **POCKET COMPUTER NEWSLETTER**. Subscriptions for 10 issues are \$20 US, \$24 Canada or \$30 Foreign. The address is PO Box 232, Seymour, CT 06483. **////** If you have developed **instructional computer courseware** appropriate for use in Grades K-12 and are interested in submitting programs on a complimentary preview basis for evaluation, contact: **Materials Review & Evaluation Center, Computer Courseware Project, Division of Educational Media, State Department of Public Instruction, Raleigh, NC 27611 (Whew)** **////** An independent repair center aimed at the Model I is being opened in Baltimore area. Contact **Geary Kelch**, 23 Mapledale Ave, Glen Burnie, MD 21061. **////** The lowercase **character generator** we mentioned in the last two newsletters as being available from **Garcia & Assoc.** in Chicago is no longer available we were told when we tried to order one. But according to a letter in 80 Microcomputing, **Radio Shack** is now selling it themselves for \$12.93 from National Parts. **////** The **Cherry Hill** users group is looking for a list of significant address changes so they can edit Model I machine language programs to run on Model III. If anyone can help, write to **Rev. Glenn Parkinson**, 14 Plymouth Rd, Cherry Hill, NJ 08034. **////** Now that **double density** is becoming more popular, we need hints on that subject to publish. One that has been brought to our attention is that 76 00 00 in place of C3 00 00 is needed to reboot to DOS in machine language programs. We heard of a magazine article that told how to transfer **NEWDOS's BASIC** to **DBLDOS** by transferring both the **BASIC/CMD** and **SYS6/SYS** without killing the originals first. But we also heard that the **FREE** command displays an erroneous amount of free grans then. **////** We have been asked if **INSIDERS** is still being published because some attempts to renew have met with no response. We wrote to inquire and received a note saying that it was still being published although several "disasters" have caused a delay. **////** It has been suggested that we ask for area or **regional contacts** throughout the U.S. to assist TRS-80 users with problems by volunteering their knowledge or referring them to magazines or other people in their area. The suggester wants to be the first volunteer for the San Jose area. He specializes in **BASIC** and **Z80** software. He is **Gordon Gibson**, 5341 Escover Lane, San Jose, CA 95118, 408/448-2227. We will compile a list of such volunteers if they will send us their names. **////** A reader who has written a lot of good assembly language routines for **ASR-33 TTY's** using the **TRS-232** is willing to provide help in this area if you need it. He is **Larry Silvia**, Pine Ridge Road, Lincoln, MA 01773 617/259-9176. That's the spirit. Anyone else willing to share some specialized talent? **////** **HELP.** Does anyone have info on **tape I/O routines** for **JPC Products TC-8** or **UTIL 4.1?** Patches needed to Editor Assembler to work with **TC-8**. Write to **Jack Decker**, 1804 W. 18th St, Lot #155, Sault Ste. Marie, MI 49783.

Now that the TRS-80 Model I is out of production, we wish to mark the occasion by acknowledging those Radio Shack store employees who have taken an interest in their product and our problems with them. Many of them have taken the heat for things they had no control over and most have good naturedly accepted being the butt of our jokes. We salute them.

THE TCS STORY

TCS can stand for anything you want it to. **THAT COMPUTER SOCIETY? THOSE COMPUTING SCREWBALLS?** How about **TOM, CHARLIE** and **SAM?** Originally it stood for **TIDEWATER COMPUTER SERVICES** or something. Almost everything is called **Tidewater** this or **Tidewater** that in this region. TCS was a part time enterprise for custom programming started by some guys who didn't even have TRS-80's. Finally, one of them got one and they let our club use their post office box as an address. We sold some software of our own to raise money and started communicating with other TRS-80 owners. When the original TCS dissolved, we were allowed to take over the post office box and some leftover letterhead. Because our letters were well known by the association with the TCS name and logo, we just kept it as the name of our club project. At that time, **Radio Shack** started coming down on people using the TRS-80 trademark in their name so we just never let the "T" stand for TRS-80. So in answer to all those who've written to find out what TCS stands for, we hope this answers your question. You can make up your own words for it.

The other question most of you want to know is who you are talking to when you write to us. Well, that depends on your question. Your mail is passed around to whoever is handy or knowledgeable about whatever you are writing about. Each of us sign our own name to any letters we write back. Our newsletter contains information from so many sources (mostly you readers and other club newsletters), we can't spare the space it would take to give all the proper credits. It's the contents that's important, isn't it? If anyone deserves credit for TCS it's the advertisers.

As you've no doubt noticed, this is the first TCS letter you've ever received that wasn't in an envelope. We didn't plan it that way. Envelopes cost money and we wait until we have some advertisers commit before spending any money we don't have. This time, while waiting to see what the Post Office was going to do and when they were going to do it, we waited too late. Our envelope supplier is in the process of moving to a different state and there is a two month wait we hadn't counted on.

We've always taken a little pride in the use of the envelopes as a touch of class. Just like the use of First Class postage. But inflation is taking it's toll on our pride. The envelopes have doubled in price during the past two years. And postal rates have just increased 15% and may increase that much or more again this year. Those and other increases plus our greater readership makes costs of our ads now out of reach for many of the advertisers we could once serve so well. Those who can afford them can afford the magazine's rates which have greater circulation. So this just may be the time to break with tradition and look for new ways to serve both our readers and our advertisers.

Advertising is generally new product information (features, latest prices, new sources, etc.) and often, that is a prime consideration when selecting a magazine to subscribe to. If that's true, a publication that is 95% advertising should fare as well as one that is only 50% advertising such as **BYTE** or **80 MICROCOMPUTING**. That should be even more true if it were free, contained a classified ad section, and was exclusively TRS-80 oriented. If TCS were to become such a publication, and it became successful, it could expand significantly. Once it got going, some low cost "apportioned" advertising could be implemented for the benefit of very small businesses -- pages with space that could be allocated in lots of 2,500 issues for use by different advertisers. The remaining 5% of it's contents would be similar to this newsletter but on a more frequent basis.

We polled several dozen potential advertisers with this proposal recently and received mixed reactions. But there were enough positive indications that we would now like to ask **all 6,000 of you readers.** Would you like to see TCS attempt such a conversion? In terms of percentage, what do you think it's chances for success would be? If annual registration (describing your system configuration) were a requirement for a free subscription, would you do it? Do you presently have an inclination to patronize our advertisers because they are supporting a free newsletter? What about the method of delivery? Is bulk mail acceptable to you? How did this issue without the envelope survive it's journey?

Drop us a postcard letting us know. User Groups, please poll your members for us. Your answers will determine our actions. Until next time

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