



P.O. BOX 10281
NORFOLK, VIRGINIA
23513

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

PUBLISHED ON RAINY WEEKENDS ----- DECEMBER 1980
(No liability is assumed for accuracy of contents.
Permission granted to reprint any or all parts.)

SEASON'S GREETINGS from southeastern Virginia where we wish you "TCS" (That Christmas Spirit). This is our last letter of the year so our greetings may be a bit early but not much. You'll have to give us until late February or early March to play with our new Christmas toys before you hear from us again.

You've made this a great year for us by thinking kindly of our newsletter project and letting us know. Your letters are SINCERELY appreciated. We wish there was enough time to individually answer more of them. And your fellow readers appreciate your thoughtfulness in sending us information to publish. Your HINTS have received the greatest compliments. And, even though we usually fail to remind you, we really appreciate the fact that you have been letting companies know you've read about them in TCS. Our flyer advertisers tell us that's why they are participating in our "cooperative mailing" a second, third or fourth time. All we can say is "THANKS". It sure makes getting together with advertisers easier now that they come looking for us.

This newsletter is into its third year of existence and, as far as we have been able to determine, our 6,000+ readers make us the most widely read in the country except for Radio Shack's newsletter. We have purposely tried to limit our popularity due to sheer physical limits of volunteer resources and facilities. In the coming year, we may be able to allow our circulation to expand if certain plans work out. We can't compare with the superior quality of content that some of you other newsletters have, but we have different objectives. We believe that there should be at least one FREE source of unrestricted information for TRS-80 owners. With your continued support, we will make that source available to even greater numbers of owners in our "T-80 SOCIETY".

It looks like we might have a little more room in this issue than usual so we are going to try to cover some subjects in a little more detail.

CHRISTMAS IN JULY

Actually, it's almost been like Christmas all year long for most of us around here. That's because every month we've been pleasantly surprised with some new hardware or software product for our TRS-80's. Some of it has even come from Radio Shack.

It was just in the last issue that we reported our enthusiasm about getting one of the first Percom double density adapters from Percom at the Philadelphia personal computer show and seeing so much free disk space on our MPI-52. That milestone now seems ages ago because since then we got our double-sided, 80-tracks per side MPI-92 drive. More about that a little later.

HINTS

To get extra life out of printer ribbons, give them a good soaking shot of WD-40 and let them sit overnight. Don't try to use it too soon after the treatment or it will print dark and light areas. The reader who gave us this one printed it on a Centronics 779 with a ribbon on its 3rd round of WD-40 and it looked great ... To get free info on mail order rules that protect the consumer, write to CONSUMER PROTECTION, FEDERAL TRADE COMMISSION, WASHINGTON, DC 20580 ... One good source of disassembled machine code listings is the RSM2D Monitor from Small Systems Software. Unfortunately, for QUICKPRINTER II owners, the 32-column line width is not enough to display the disassembly format of RSM2D so wraparound makes the printouts difficult to read. But there's a quick fix, easily done inside RSM2D: Change the value of location 7BB6 from 06 to 04. That removes six unnecessary blanks from the line so that it fits on one QUICKPRINTER II line ... Manuals like the Level II Reference Manual, TRSDOS manual and TRS-80 Technical Manual are more like magazines than books because of the way they are bound. They will last longer, sit up straighter and be easier to find in a bookshelf if you insert them binder specially made for magazines like you would find on an airplane. Get them from Office Supply stores ... Level II ROM's (at least the ones in earlier systems) won't allow an ASCII "line feed" character (code 10) to be sent to a printer using the BASIC command LPRINT CHR\$(10). That's because any 10, 11

or 12 is changed to ASCII code 13 (carriage return) by the LPRINT routine. To get around that, use the BASIC command POKE &H37E8,10 (hex) or POKE 14312,10 (decimal). If you need to generate more than one line feed at a time, check the "printer ready" status before each poke. Otherwise, they will be generated faster than the printer can accept them. A simple statement for use inside a FOR-NEXT loop is:

```
100 IF PEEK(14312) = 63 THEN POKE 14312,10 ELSE 100
```

NEWS

The Model I TRS-80 may "still be going strong" according to Radio Shack's 1981 Computer Catalog, but we've found that they are fast becoming hard to find. You can't buy one anymore from some places that have current ads for them including some Radio Shack franchised dealers. At one time you could get a 4K Level II keyboard unit by itself plus power supply for under \$400. By adding your own 16K chips for under \$50, a surplus video monitor (of better quality) for \$40, a keypad for about \$7 and lower case for about \$3, you could have an entire system for under \$500 (\$400 for Level I) assuming you had a standard audio cassette recorder kicking around the house as most people do.

Those days are all but over. Now, you can't count on finding one of the few Model I's left without Radio Shack's \$120 RAM, \$200 monitor, \$80 keypad or \$60 lower case (plus installation charge) so you are forced to pay for them. So when your friends ask how much it will cost to computerize their small business or just get a system like yours, it is meaningless, and even a little cruel, to tell them how little your system cost. You can't blame today's inflation rate because the laws of inflation don't apply to the electronics industry. As time goes on, electronics components become more sophisticated and better quality and their costs DECREASE. The only reason TRS-80 computers are becoming more expensive to own is because the lower priced units are being taken off the market so the higher priced configurations are the only ones available. With the Model III, that means close to \$1,000 (unless you want to go back to Level I). And, unlike the Model I, you can't even use it with somebody else's less expensive disk drive with as much as four times the storage capacity unless you buy one from Radio Shack first because that is the only way to get the disk controller circuit.

Happily, there is still an alternative if you happen to be a hardware hacker. LNW RESEARCH, famous for their highly popular and superior performance expansion system for the TRS-80, has now designed an entire computer that is compatible with the TRS-80 Model I and even uses the same ROM's which will be available either from them or Radio Shack. Like their expansion interface, you build the computer (called LNW 80) from their 10" by 16" printed circuit board and your parts. The board is currently advertised for \$89.95 and they will offer hard to find parts at reasonable prices. For example, a 63-key keyboard which will have 10 extra keys for special and user defined functions will be about \$85 and a steel case to eliminate radiation will be about \$70.

Besides acting like a Model I TRS-80 and running all its software, the LNW 80 has some impressive additional features. First, it runs a Z-80A at a 4 MHz clock speed which is twice that of either Model I or the new Model III. Their existing expansion interface is able to operate at that speed without modifications. Next, there is high resolution (480 x 192) graphics in eight colors (more than with Apple II) or high resolution black and white graphics mixed with text. That circuitry permits the video monitor to display either the standard 16 line 64 character format or, with appropriate software, 24-line 80-character format. Reverse video and lower case capability is standard. The cassette circuit has been improved for reliability and two baud rates of 500 and 1100 are available. Delivery is expected to start in December. To order or get more information, call 714/552-8946 or write to their new address: LNW RESEARCH, 3183-E Airway Ave, Costa Mesa, CA 92626.

ComputerTown, USA has been awarded a National Science Foundation grant. The project, using the resources of the Menlo Park Public Library, community centers and local business locations, donated hardware and software, and volunteers, brings hands-on participation in microcomputing to the city's children and adults. In the next three years, ComputerTown, USA will continue to publish and distribute its monthly bulletin, offer courses, workshops and events, document the project in the form of a descriptive model and distribute information to other communities around the country. It is being offered as a model of a computer literacy undertaking that can be implemented anywhere using local resources and talent. Director of the project is Ramon Zamora. Offices are at People's Computer Company, a non-profit educational corporation, PO Box E, Menlo Park, CA 94025

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.

SACRIFICE - TRS-80 Model I, Level II, 48K, interface, 3 disk drives, 779 Centronics printer, modem, 100 disks, asst operating manuals, word processing software and \$3,000 worth of business and game programs. Total cost \$8,150, used less than three months, will sacrifice for \$2,950 (a 64% discount). MERIT INDUSTRIES, 119 SERENADA DR, GEORGETOWN, TX 78625, 516/863-8104

AMINOGLYCOSIDE DOSING PROGRAM for the TRS-80, 16K, L2. Program estimates dosage of four aminoglycoside antibiotics, amikacin, gentamicin, kanamycin, and tobramycin. Program enables pharmacokinetic drug consultants 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

MATHACE - Have trouble with figures? Become a MATHACE with this BASIC program which will quickly improve your addition, subtraction, multiplication and division skills. Four levels of achievement are included: Level I (youngster level) through Level IV (which will challenge any brain). For 4K Level I or II cassette, only \$4.95 from EMILIO GARCIA, 5803 JOINER #66, SAN ANTONIO, TX 78238

SAVE ON SOFTWARE - Ramware Microproducts is allowing a five percent deduction off it's line of software on orders over \$20 (and we pay shipping). We carry 18 adventures (3 are new releases), 7 arcade games, 8 utilities, a newly released DOS by Randy Cook and many others. 9 page catalog for: ATTN: GREG NICHOLS, RAMWARE MICROPRODUCTS, 909 W. LOCKHART ST, SAYRE, PA 18840

HAS ANYONE done any research on the "hidden" (undocumented by Zilog) codes for instructions in the Z-80 microprocessor? If so, I would like to hear what you have discovered, for possible inclusion in a magazine article. JACK DECKER, 1804 W. 18TH ST, LOT 155, SAULT STE. MARIE, MI 49783

I WILL SELL ONE SET OF 16K MEMORY CHIPS that are too fast for my older expansion interface. Paid \$75 for them but will sell for \$48. ART BOSSHART, 1658 C REORDAN COURT, KEY WEST, FL 33040

FOR SALE - KSR-33 TELETYPE (in beautiful Boroughs case) recently professionally overhauled, with extra ribbons, repair manuals, etc. Easily hooked up to TRS-80 and others. \$190.00 from BRYAN MCPHEE, 2742 VIRGINIA TRAIL, BROWN MILLS, NJ 08015, 609/893-5120

PLEASE NOTE MY NEW ADDRESS - I sell the PERSONAL ESTATE PLANNING program for 16K L2 (see Feb 80 Creative Computing) which is \$9.95 for cassette and documentation. Printer version also available. LARRY BUSS, 1109 CABRILLO CIRCLE, VISTA, CA 92083

CLUB SEEKS USED SOFTWARE - We will buy your used software in original form (on either cassette or disk) and with documentation. Send list and your asking price, then we'll send you a check for items we buy. WICHITA VALLEY TRS-80 USERS GROUP, PO BOX 4391, WICHITA FALLS, TX 76308

CONTROL - A very convenient DOS utility for users who have added a "Pencil"-type control key. Provides auto key repeat on/off, lowercase video and keyboard drivers with lower-upper switching, screen print for graphics-compatible printer, Directory from BASIC, and more. 32K Disk with control key only. Send \$15.00 to JOHN RATZLAFF, MOUNT PISGAH ACADEMY, CANDLER, NC 28715

USED SOFTWARE BOUGHT & SOLD ON CONSIGNMENT - Recycle those no-longer-needed programs you paid good money for. SELLERS: Programs must be on original media with all documentation. Send list plus price you want. BUYERS: You pay seller's price + 10% postage & handling. Send SASE for current list of available programs. JACK DECKER, 1804 W. 18TH ST, LOT 155, SAULT STE. MARIE, MI 49783

SERIAL PRINTER INTERFACE - don't dedicate your RS-232 card and the memory it requires to drive a serial printer. Leave it free for modems or other uses. Instead, use the parallel port on either Radio Shack's or LNW's expansion unit by building a parallel to serial converter. Supports handshaking. Uses power from the expansion unit. Circuit board and instructions, \$24.95 from EHI CO., 7808 SHERYL DR, NORFOLK, VA 23505

TRSDOS DISK UTILITY - Simplify housekeeping of disk files on your diskettes. Perform DIRectory of invisible and system files (including file allocation), display free space on all drives, perform individual and multiple KILL's and COPY's. All functions require single keystroke response to system prompts. Requires Level II 32K disk system and TRSDOS. Copy function requires 2-disk system. \$19.95 disk with documentation. ART AYLESWORTH, 1255 HAWK AVE, VIRGINIA BEACH, VA 23456

BETA-80 DIGITAL CASSETTE DRIVE, new under warranty, 500K capacity, full feature file management operating system, 4 extra digital cassettes, standard cable and cable for E/I. Reason for sale, moved up to disc. List \$550, sale \$395. WM. J. SCHENKER, MD, 2086 ESSENAY, WALNUT CREEK, CA 94596 415/937-5868

MAIL YOUR FLYERS WITH OUR TCS NEWSLETTER - The FEB/MAR issue will be mailed FIRST CLASS in SEALED ENVELOPES to over 5,000 bonafide TRS-80 owners like yourselves. If direct mail advertising works for your type of product, you can avoid the trouble of printing flyers, folding them, stuffing envelopes, stamping them, addressing them, and maintaining a current mailing list. You also avoid the cost of envelopes and printing and it still costs significantly less than a bulk mail stamp for each flyer.

*** You can have a FULL PAGE flyer printed from your camera ready artwork on the back side of one of our newsletter pages for less than the cost of a bulk mail stamp by ITSELF.

*** If you would prefer a separate flyer printed on BOTH sides (18" square inches of area devoted to your product) the total cost will still be less than the cost of a bulk mail stamp.

*** If your business isn't that big yet, why not try an 8-1/2" by 3-2/3" MINI-FLYER printed on one side both sides. Even an individual can afford the price.

*** NOTICE ***

The exact prices for these flyers has not yet been determined because we don't know how much, if any, the post office is going to increase the rates for first class postage or what the increase in paper, envelopes and printing costs are going to be next year. But we will inform you as soon as we find out, probably in January. If you think you might be interested, please drop us a line. There will be no obligation.

AN APOLOGY

It is interesting to note some of the comments coming out of Fort Worth in different publications about the inaccurate rumors being published by some magazines and user group newsletters. They say that 99% of all the hot news reported about them is not true and, in their September 1980 newsletter, they cite the rumor about the Model I being dropped as an example.

We at TCS don't know how such ridiculous false rumors got started. But we plead guilty of helping to spread them and we are ashamed of ourselves. Even though we had heard early in the year that production of the Model I would be halted during the last half of this year and we failed to report it then, we finally broke down in our September issue after reading an FCC report about interference from personal computers. We should have realized that if the rumor was true Radio Shack would have told us. It probably isn't even true that Model I production will be shifted to a plant in Mexico next year so that it can still be sold outside the United States where the FCC has no jurisdiction.

We now realize that we have been wrong many times in the past: March 79 when we reported the existence of XR3-III cassette mods; June 79 when we reported the legal lowercase mod 8 months before RS admitted there was such a thing; also June 79 when we reported that there were TWO new computers in the works besides Model II (14 months before Model III or TRS-80 OLOR) and March 80 when we described most of their features; and May 80 when we covered the leasing program by A&A Financial that was finally mentioned by Radio Shack five months later. We have been wrong so often, we are now convinced there had never even been a Model II.

Of course, we will continue to report rumors because TCS can only survive by reporting "garbage" to keep up readership. True facts just don't justify the cost of our subscription rates. As long as you readers know that what you are reading is only rumors, how can it hurt you? Anyway, the dictionary says a rumor is only a statement or report which hasn't been confirmed. Inaccuracy is only implied.

Apple Computer, Inc disclosed recently that it's growth in the past three years was a staggering 15,000% with net sales of over \$117 million this year. It is going public with stock offered for about \$17 per share. remember when Tandy stock was hovering close to that figure not too long ago? Today, it is worth about \$80 per share. Down just a little from last month.

The standard 5-1/4" mini-floppy disk drive, like the ones sold by Radio Shack, are known as 48 tpi (tracks per inch) drives. In other words, if 48 tracks were used then they would fit in a ring one inch wide around the center hole of a diskette. So that determines the SPACING between tracks (20.8 thousandths of an inch) and has nothing to do with the actual number of tracks used. That's why disks recorded on a 35 track drive can be read on a 40 track drive (and vice-versa except for the five innermost tracks).

Back in May we reported that MICRO PERIPHERALS INC had announced their MPI-91 (single head) and MPI-92 (dual head) 96 tpi drives that would be capable of 80 tracks per side in the same amount of diskette space as 40 tracks on existing 48 tpi drives. At about the same time, TANDON MAGNETICS announced a similar product and others are following suit.

At last count, there were 44 makers of floppy disk drives -- 25 in the USA, 11 in Japan and 8 in Europe. Revenues are expected to surpass \$1 billion this year. Production of the 5-1/4" mini-floppy is increasing at the rate of 124% per year and by 1983, the double-sided model will be the industry standard and 82% of those will be 96 tpi. Even the single-sided model will be more popular than either single-sided or double-sided 8" drives.

SHUGART ASSOCIATES is trying to shake their "has been" image in mini-floppy disk drive technology. They fell behind as they continued to produce their single sided, 35 track SA400 as other manufacturers made 40 tracks and dual heads more popular. Mr. Shugart, their founder, left and formed a new company to make Winchester drives. Shugart Associates never did get their dual head drive to perform reliably.

Now, after MPI, TANDON and MICROPOLIS have taken the lead in double track density drives, "Shugart finally has admitted that not only are 96 tpi and 100 tpi possible, but they've found out how to do it", according to a quote in Computer Systems News. They will produce a 96 tpi drive called the SA460 sometime next year using the head recently licensed from Tandon. But instead of a band positioner like MPI and Tandon uses, the SA460 will use the lower performance lead screw technique for a possible price advantage.

Perhaps it is that sort of thinking that has caused Shugart Associates to lose another large contract. First, it was Tandy who switched to other brands of mini-floppies for their computers. Now Commodore has announced it will switch from Shugart to Micropolis drives beginning with a \$3 million dollar initial order, renewable to a \$12 million annual value, according to a story in Computer Systems News.

Because we have been very satisfied with our MPI-52 (dual head, 40 tracks per side) and it's performance with PERCOM's Double Density Adapter in our LNW Research Expansion board, we bought an MPI-92 from ALPHA TECHNOLOGY back in September. It is occupying drive positions 2 and 3 in our system and, operating in dual density, it provides us with 282 free granules on each side or 564 free granules (about 722K) on each diskette after formatting. With the Percom DBLDOS (including BASIC and COPY) on the MPI-52 in drive 0, the two drives together show a total of 821 free granules using the FREE command. That's over a megabyte for less than \$1,000 worth of disk drives (plus a double density adapter).

We are pleased to report that after two months, we haven't encountered any difficulties whatsoever. There is no hesitation in reading so-called "quad density" data even though we are still using nothing but the cheapest, single sided, single density Verbatim diskettes we have always used. And it may be our imagination, but the MPI-92 even seems to be quieter than the MPI-52.

READER FEEDBACK

We've heard the upper/lower case mod kit and Automatic on/off mod kit for the Centronics 779 printer work great. They were ordered from SERVICE TECHNOLOGIES, 38-44 Spring St, Nashua, NH 03061 ... In our May 80 issue we reported that VR DATA CORP in Folcroft, PA had a TRS-80 repair service. We have been informed that the rates are \$25 PER HOUR plus parts instead of a flat \$25 plus parts as we stated. A reader who used that service reported later that he was satisfied ... We've been told that MICROSETTES cassettes are inexpensive and work very well. They are at 475 Ellis St, Mountain View, CA 94043 ... The

new character generator chip with lowercase decoders we mentioned in the last newsletter is definitely available from EMMANUEL B. GARCIA & ASSOC, 203 N. Wabash, Chicago, IL 60601, 312/782-9750. Ask for number 36-140. It's \$19.95 with instructions. When installed, the switch in the Pencil-type mod can be eliminated by unsoldering the wires from the switch that go to the cut trace, leaving the trace cut as is. Then unsolder the remaining wire at the switch (the other end should be attached to pin 12 of the additional memory chip) and solder it to pin 13 of 227. (Until this moment, we interpreted this to mean that Pencil no longer requires the switch but the reader may have just been referring to Scripsit. It's too late to check on this right now. Can anyone clarify? -Ed.) ... We have been asked if anyone knows any fix that allows Microsoft's BASIC Compiler to recognize NEWDOS BASIC "command" orders. Example, CMD "DIR:1" will not work. How about it? ... SUPER STEP by Allen Gelder Software continues to be praised by several readers. Seems it can't be recommended too highly ... In this column in the last issue we relayed some negative feedback we had received about APPARAT. One reader took exception and made the effort to write: "Boo to Apparat? I have always found them to be an excellent company with answers for my questions. Let's not forget that NEWDOS makes the TRS-80 work (I'm not familiar with VTOS and all that familiar with TRSDOS). Make it a Yea."

Editor's note:

Thanks go to the reader above for writing to support Apparat. Positive comments make much better reading than negative ones. But negative comments can sometimes serve a positive purpose and that's what we intended with the original "boo" to Apparat. Not to scare away potential customers but to encourage a positive change in one of their policies and similar ones in other companies.

Even though we believe the TRS-80 works without NEWDOS, we agree with the reader that the NEWDOS series are super products. The problem is that Apparat led customers to believe that they would always be informed of the latest changes and enhancements to the software they were paying a premium price for, yet they failed to do so in many cases. When a registered owner of NEWDOS/80 learns that someone has acquired an unauthorized copy of the same program that is a later version, it is understandable why he becomes upset that his letter requesting those same updates goes unanswered. When three new versions, all "bootlegged" copies, turn up in a period of six weeks and it takes three letters and two long distance phone calls before even the first updates are received, it isn't hard to figure out why the practice of software pirating is so popular. Who is going to buy the same program over and over at \$150 a shot just to make sure he has the latest version at all times? So computer hobbyists, who are more likely to be on a limited budget without tax incentives or profit potential, are sometimes driven to splitting up software purchases among themselves and then making copies for each other. That leads to opportunities to copy other software while they are at it and while the practice is justifiable in their minds.

Our "boo" wasn't awarded viciously, it had been earned and was printed to encourage corrective action that letters from individuals failed to produce. Other companies, take note. Are you aware of what kinds of customer relations have been established by your employees today?

READING MATERIAL

THE BOOK (\$14.95 + \$1 S&H) is a definitive explanation of how math is performed in the Level II ROM's. It includes a partial disassembled listing with comments and a listing for a disassembler in BASIC. It received a very high mark in a review in the Nov/Dec 80-US and is the first of what is supposed to be a three volume set. FULLER SOFTWARE, 630 E. Springdale, Grand Prairie, TX 75051, 214/642-0441

MICROSOFT BASIC DECODED AND OTHER MYSTERIES (\$29.95 + \$2 S&H) is the title of Harvard Pennington's new book. It is 124 pages of comments plus 6 additional chapters, according to advertisements. His first book, TRS-80 DISK AND OTHER MYSTERIES, is extremely popular and one of the most highly regarded. Available from IJG COMPUTER SERVICES, 569 North Mountain Ave, Suite B, Upland, CA 91786, META TECHNOLOGIES CORP, 26111 Brush Ave, Euclid, OH 44132, and other sources.

ELEMENTS OF PROGRAMMING STYLE (\$7.95 +\$&H) by Brian Kernigan of Bell Labs and P. J. Plauger of Yourdon, Inc, is 160 softbound pages on how to incorporate structured programming into your programs to make them easier to originate, verify and maintain. MCGRAW-HILL, 1221 AVENUE OF THE AMERICAS, NEW YORK, NY 10020

STRUCTURAL DESIGN WITH GRAPHICS

WOOD OR STEEL BEAM/JOIST DESIGN WITH COMPLEX LOADINGS OF UNIFORM LOAD AND/OR CONCENTRATED LOADS, SIMPLE SPAN OR CANTILEVER.

Beams and loads drawn to scale on screen, with shear and moment diagrams (see example), reactions, axisline shear and moment, INPUT deflection list, material calculate minimum beam size, actual stresses. Vary parameters to examine alternatives. Print report (see sample).

Also calculate the new 'I' and 'S' of any 3 combined rectangular elements (such as built-up beams) with graphics.

STRUCT-I

STRUCT-I (32K, tape/disk) \$15.00

STRUCT-I (32K, tape/disk) \$15.00

DEPRECIATE-I

MANAGE A DEPRECIATION LIST

Easily keep track of up to several hundred items in one or several separate depreciation files. Easily handle varying purchase dates, depreciation types and rates and per cent business use. Add items at any time and automatically update total list to current tax year.

Track and store on disk DESCRIPTION, PURCHASE DATE, COST, SALVAGE, LIFE, PER CENT BUSINESS, EXTRA FIRST-YEAR DEPRECIATION, BASIS, ACCUMULATED DEPRECIATION, REMAINING VALUE, and REMAINING LIFE.

Print tax schedule (see sample).

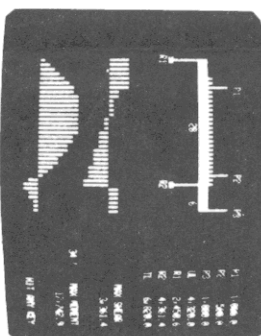
DEPRECIATE-I (32K, tape/disk) \$15.00

DOCUMAN SOFTWARE

BOX 387-C KALAMAZOO, MI 49005 (616) 344-0805

USEFUL, SOPHISTICATED PROGRAMS AT MODERATE PRICES - WE WELCOME THIS OPPORTUNITY TO SHOW YOU THE DETAILS.

STRUCT-I GRAPHICS



RIA-I

REAL ESTATE INVESTMENT ANALYSIS

Sophisticated analysis of the profit potential plus eye-opening profits in personal home ownership.

INPUT: Project cost, income, expenses, mortgage data, tax rates, tax bracket, depreciation amount, type, inflation and appreciation.

OUTPUT: (---see sample---), CAPITALIZATION RATE (Ellwood), CAP VALUE, resulting MORTGAGE LOAN, EQUITY, and for any 5 years, find GROSS INCOME, EXPENSES, INCOME, DEPRECIATION, MORTGAGE PAYMENTS, TAXABLE INCOME, TAXES, CASH FLOW, and RETURN (IRR) from holding or sale.

RIA-I (32K, tape/disk) \$30.00

FINDISK-I

FIND DISK FILES INSTANTLY

Now automatically read file names and disk names of all your disks, print a LABEL automatically marking as 'DATA' or 'SYS' disk. Then fast SORT file (new), print MASTER INDEX, and save on disk. SEARCH Index for any character(s).

Add optional DESCRIPTIONS to each file. Automatically PURGE Master Index and disks of unwanted files. UPDATE Index automatically from revised disks only.

Use TRSDOS, NEWDOS2.1/80 or RS/IC.

FINDISK-I (32-48K, tape/disk) \$20.00

SOLAR-I

PASSIVE SOLAR DESIGN TOOL

All the essential information for design of passive solar buildings.

INPUT: Any latitude, any slope, orientation, size, roof overhangs, building heat loss, storage type, local weather/solar data.

OUTPUT: monthly or hourly, the critical solar angles, shading, solar penetration, degree days, temperature, solar loss, heat loss, solar gain, fuel used, % solar, and optimum sized area. Seasonal summary of solar contribution, fuel use, cost, and recommended amount of storage. Print report in presentation format. Store data on tape or disk (48K).

SOLAR-I (32-48K, tape/disk) \$30.00

SOLAR-I (32-48K, tape/disk) \$30.00

FINDISK-I

FIND DISK FILES INSTANTLY

Now automatically read file names and disk names of all your disks, print a LABEL automatically marking as 'DATA' or 'SYS' disk. Then fast SORT file (new), print MASTER INDEX, and save on disk. SEARCH Index for any character(s).

Add optional DESCRIPTIONS to each file. Automatically PURGE Master Index and disks of unwanted files. UPDATE Index automatically from revised disks only.

Use TRSDOS, NEWDOS2.1/80 or RS/IC.

FINDISK-I (32-48K, tape/disk) \$20.00

FINDISK-I (32-48K, tape/disk) \$20.00

VISA/MC Order Line Only 800-255-4356 ext. 100
DOCUMAN SOFTWARE
BOX 387-C KALAMAZOO, MI 49005 (616) 344-0805

Model-I: (circle tape/disk) one-drive
order tape, & Model-II add \$15.00

() FINDISK-I (disk/tape).....\$20.00
() SOLAR-I (disk/tape).....\$30.00
() RIA-I (disk/tape).....\$30.00
() DEPRECIATE-I (disk/tape).....\$15.00
() STRUCT-I (disk/tape).....\$15.00
Total incl mail & \$1 ea
4% Tax (Mich):
TOTAL OF ORDER:

() CHECK
() VISA/MC \$:
EXP:
NAME:
STREET:
CITY:
STATE, ZIP:

SOFTWARE PRODUCT HIGHLIGHTS

TRAKCESS (\$24.95)

Where can you buy a quality piece of software and make copies for your friends with the author's blessing? THE ALTERNATE SOURCE (1806 Ada St., Lansing, MI 48910, 517/485-0344) has announced TRAKCESS by Roxton Baker, an author whose articles, programs and opinions have appeared in the likes of 80 MICROCOMPUTING and OCTUG. This brand new and extremely powerful utility for 48K disk systems will read, write, duplicate or modify (with editing features similar to Electric Pencil) any sector or an entire track regardless of protection or the type of DOS used. It supports scrolling, hex and ASCII displays and more. The twist is that the author invites the purchaser to make up to five copies of it for friends, thereby allowing them to legally share the cost. He appears to believe that, like the "honor system", a generous attitude toward making copies would not be abused as much as a threatening one. We hope he is rewarded. By the way, if you are still reluctant to buy TRAKCESS, you can buy the manual by itself first for \$1 from THE ALTERNATE SOURCE. Dealer inquiries invited.

VTOS 4.0 (\$125.00)

In the enthusiastic terms of some local members who bought it because they found NEWDOS/80 disappointing, "VTOS 4.0 is not just another DOS, it is the ONLY DOS". They say it is easier to use and much more versatile, even rivaling the operating systems on some of the big mainframe computers. It is written by Randy Cook, creator of the original TRSDOS for RADIO SHACK before they parted company. The earlier versions were not well accepted, mostly because of the extensive protection schemes incorporated. VTOS 4.0 has not gone that route. Instead, one of the first things the author encourages the owner to do is make a backup for safekeeping. It supports TRSDOS so that all Radio Shack and Microsoft software will run under it. The features are too numerous to list so see the ads in magazines.

SMART80E

"Dumb Terminal" programs have been available for some time but none have allowed the transfer of BASIC programs or text files to Exatron's STRINGY FLOPPY. Now, SMART80E by Dick Balcom, is available to do just that and also permits transfer of source code files. SMART80E is for use with cassette based systems. Both were written in machine code for use with THE CONNECTION and additional information is available from THE MICROPERIPHERAL CORP. (Box 529, Mercer Island, WA 98040, 206/454-3303).

SUNMAX (\$8.00)

This computer game for 16K Level II can be played by one to nine people. Each player is assigned a solar energy job such as hot water heating, home heating or air conditioning in one of 200 randomly selected cities around the world and must guess the tilt required of the collectors based on feedback information. Available from SOLARTEK (PO Box 298, Guilderland, NY 12084).

MISCELLANEOUS SOFTWARE

We received a flyer in the mail about BREADBOARD, a linear electronic circuit analysis and plotter for \$19.95 from MURCO (PO Box 5878, Oxnard, CA 93031). It sounds interesting and we ordered it over two weeks ago at the introductory price of \$14.95, good until December 25, but we can't report on it until it arrives ... ASTROLOGY we're not into but we couldn't pass up the opportunity to pass along the very favorable impression of a review by 80-US magazine. They said it came with a large, beautiful wall chart and although the 33-page booklet only covered the basics of astrology in their briefest form, the program is amazing for those familiar with the subject. It's \$29.95 from RADIO SHACK ... A series of QUIZ games on popular subjects from QUARP PUB'S (PO Box 7416A, Oxnard, CA 93031) is reasonably priced (see enclosed flyer). It was a pleasure to meet the authors during a recent trip to the west coast and play one of their games. It is one of the few we've seen that can be (and is being) enjoyed by someone who usually finds the computer awkward to use (my wife). You will get your money's worth from these fast-paced programs ... WORD-TYPE, a word processor, and 100 additional programs in the categories of education, electronics, scientific, games, business, home applications and utility come with a binder and manuals for \$109.95 from HIGH SIERRA SOFTWARE (5541 Highway 50 East, Suite 2A, Carson City, NV 89701, 702/883-6590). Specify Level II tape or disk or Model III tape format ... A variety of business oriented software from a company that has been on our TCS mailing list since we started over two years ago is described in a 20-page pamphlet called MICRO YELLOW PAGES. It includes mail list systems, accounting, inventory, word processing, data base management, sorts, etc. and seems to be reasonably priced for either Model I or Model II. MICRO ARCHITECT, INC (96 Dothan St, Arlington, MA 02174 ...

HARDWARE PRODUCT HIGHLIGHTS

MPI-91 / MPI-92

These single head and dual head drives from MICRO PERIPHERAL INC are the first of the new 80-track drives that are expected to become the new "standard" for mini-floppies. They have a track density of 96 tpi (tracks per inch), exactly doubling the 48 tpi of existing 35 and 40-track drives. Physically, they are the same size as the popular MPI-51 and MPI-52 40-track drives, fit in the same size case, have the same power supply requirements and even use the same printed circuit board for commonality. They continue to utilize band positioning of the heads, the technique generally recognized as the fastest and most accurate. TANDON MAGNETICS has equivalent drives called the TM100-3 and TM100-4 they are advertising although we haven't seen a distributor for them yet. A half dozen other manufacturers are planning similar drives for next year.

MODEL 488-80B GPIB INTERFACE (\$225)

This palm-sized interface box with separate power supply is used to add GPIB (General Purpose Interface Bus) controller capability to 16K Level II systems. (GPIB is also known as IEEE-488, a standard based on the one developed by Hewlett Packard Company and used mainly to control test instruments that are appropriately configured with that option.) The model 488-80B interface plugs into the expansion port on either the expansion unit or the back of the keyboard and connects to instruments through the standard 25-conductor daisy chain cables. The operating software comes in either tape or disk versions and is a series of machine language subroutines that are loaded into protected memory, then called by the USR command from BASIC programs. Documentation is a single page but is clear and contains several short sample programs in BASIC. It is available from SCIENTIFIC ENGINEERING LABORATORIES (11 Neil Dr, Old Bethpage, NY 11804, 516/694-3205).

U3000 MEMORY EXPANSION UNIT (\$99)

This is a 1K memory device from COMPUTER PERIPHERALS (see enclosed flyer) that uses extra addresses just above ROM for anything you want to have in memory at all times. And if you don't have any favorite routines of your own to put there, there are some dandy ones that they will supply. Our local club was loaned one of the units to demonstrate at a meeting. We are happy to report that it seems to be everything it is advertised to be. The documentation was complete and accurate and easy to follow. We were very impressed with the utility programs that came with it, too. They loaded the first time, were easy to put on disk (it works just as well without a disk or expansion unit) and worked when accessed. One of the utilities displays a "meter" on the screen that aids in setting recorder volume. Very nice. And having a monitor at the touch of a key is almost indispensable for you machine language types, especially if you don't have a disk.

MODEL C-120Q CLIPPER (\$57.50 + S&H)

A line voltage transient suppressor that can protect your system against high voltage spikes that can and do occur more often than you would imagine from induced lightning, appliances, etc. This one is a unique design that provides a constant clamping level regardless of the amplitude of the spike. It handles nanosecond spikes and is not subject to degradation with repetition. With fuse and pilot light. DYMARC INDUSTRIES (7133 Rutherford Rd, Baltimore, MD 21207, toll free 800/638-9098)

MISCELLANEOUS HARDWARE

For those of you owning the popular LNW Research Expansion interface but can't find a convenient location for it, SYRACUSE R&D CENTER (Box 125, DeWitt, NY 13214) may have the answer. It's called the 80-LNW SHROUD (\$24.50) and appears to be a base for the video monitor but made so that the LNW board will fit inside with openings in the right places for the cables ... A digitizer pad is used to enter information from a map, drawing or selection chart into a computer. It is a board with a matrix of imbedded wires through which current passes in a scanned pattern. With a single sheet of printed matter placed on it, the relative position of a "bug" or "pen" touched to its surface can be determined through inductive pickup and input to a computer. Such a device known as BIT PAD ONE is shown with a Model I TRS-80 in an advertisement by SUMMAGRAPHICS (35 Brentwood Ave, Fairfield, CT 06430, 203/384-1344). No price is given and they usually aren't cheap, but there is just no substitute in some (usually professional) applications ... The cheapest price we've seen yet for memory is in a classified ad in the December POPULAR ELECTRONICS. "Surplus 16K(4116) set of 8 \$29.95 guaranteed" is what it says. From JJM (Box 953P, Centerach, NY 11720).

ALPHA TECH COMPLETE COMPUTER SYSTEMS
PRODUCE LETTER QUALITY DOCUMENTS FOR YOUR BUSINESS.....

Composed of Radio Shack's Model I Computer, Micro Peripheral Disk Drives, and the IBM Selectric based Printer, ALPHA TECH systems offer MORE for your money...



- *Model I Level II
With 48K RAM and
Factory Installed
Lower Case Rom
- *2 MPI Disk Drives
Single or Dual Head
40 or 80 Tracks
- *IBM Selectric Printer
With 4K Buffer
Typewriter Off-Line
Correspondence Code
- *Custom System Desk
- *All interfacing, cables
and Power Supplies Hidden
- *Overall dimensions
24" x 43" x 37"
- *Heavy-duty rubber
ball casters

SYSTEMS AS ABOVE START AT \$3600

LET ALPHA TECHNOLOGY QUOTE A SYSTEM TO FIT YOUR BUSINESS NEEDS

OTHER PERIPHERALS FROM ALPHA TECHNOLOGY.....

DISK DRIVES

With Case and Power Supply

MPI 51 40 TRK	\$350.00
MPI 52 40 TRK	\$450.00
(Dual Head)	
MPI 91 80 TRK	\$500.00
MPI 92 80 TRK	\$600.00
(Dual Head)	

PRINTERS

(See Photo Above)

500 Char Buffer Selectric	\$1095.00	\$895⁰⁰
4K Char Buffer Selectric	\$1295.00	\$1095⁰⁰
CENTRONICS 737	\$895.00	\$825⁰⁰
(Same as RS Line Printer IV)		
Printer Cables		\$35.00

**YEAR END
SALE!**

Alpha Tech SPLITTER/TWO

\$100.00

Allows use of two Parallel printers on one computer system
 (All Orders Shipped F.O.B. Raleigh, N.C.)

ALPHA

Technology

1201 WICKER DRIVE
 P.O. BOX 58499
 RALEIGH, N.C. 27658
 (919) 755-1175

A 24-page ZILOG Z-80 CPU PROGRAMMING REFERENCE pamphlet is a collection of tables for machine language programmers and lists all Z-80 instructions, mnemonics, object codes, error codes, etc. If you could use one, a single copy is free for the asking. Write to: LITERATURE DISTRIBUTION DEPT., ZILOG INC., 10340 BUBB RD., CUPERTINO, CA 95014. Ask for number 03-0012-01.

A new bi-monthly "magazine" which comes on a diskette is called MICRO MEDIA MAGAZINE. Their flyer says they have established themselves on Heath and Zenith micros. The premiere issue #1 of the TRS-80 version can be ordered for \$11.95 or an annual subscription for \$55. M-CUBED PUBLICATIONS INC., PO BOX 402286, GARLAND, TX 75040.

The 80 SOFTWARE DIRECTORY (a mini-flyer advertiser this time) is not only a handy reference of both Model I and Model II software cross-referenced by category, title and supplier, it is also a valuable method of free advertising for your programs which you should not overlook. Send them your catalog to have your programs listed for sale.

In the area of magazines, our inputs come mostly from readers who have volunteered to scan one that they subscribe to and fill out an information retrieval form for us. We have planned all summer to compile an article index based on these to send to all known TRS-80 user groups so they can make copies for their members. We plan to make copies available to individuals also upon request but there will have to be a slight charge. We have not abandoned that project so just keep the faith a little longer. The problem is some of our volunteers have been dropping out of participation without us realizing it until we start to work on their lists so we keep putting off the index. If you would like to be a volunteer for this project, drop us a line and say which of the two dozen or so computer periodicals you would like to scan for articles of interest to TRS-80 owners. We would like to have three to five people for each one so we can combine their comments into an average response and not be in a bind if someone misses an issue for some reason.

Now, from the forms we have received since the last issue, here are some highlights that have caught our eye. 80 MICROCOMPUTING is one that almost everyone sees and gets something out of. The views, reviews, news and ads worth the cost of the subscription because of sheer quantity, if nothing else. The November issue has the listing of a Monopoly game (we were wondering when someone would get around to doing that) and an interesting article on how one man built a TRS-80 (with enhancements) from scratch. We are happy to be seeing a lot of our readers names in the bylines.

80-US, the TRS-80 Users Journal, has really grown in the last couple of years and many say it is better than 80 MICROCOMPUTING now. The Nov/Dec issue was 112 pages of really interesting reading. Their staff writers seem to put a little extra effort in research of articles. They are heavy on tutorials, comparisons (three DOS's in this issue) and reviews but also present well written applications programs as well. Some interesting articles in this issue were on interfacing a plotter, a light pen and a sound circuit. Keep it up, folks.

RECREATIONAL COMPUTING is published bimonthly by a non-profit educational corporation, People's Computer Company who also sponsor COMPUTERTOWN, USA (see front page). They are heavy on educational applications of computers in general and articles are always stimulating to read. Games play an important role in education because they almost always require the player to solve a problem. You'll find games in this magazine applicable to the TRS-80 and usually a cut above most others because of their educational value.

THE ALTERNATE SOURCE people fill the gap between the issues of their magazine with a smaller version appropriately called BTI. In the latest one, the first impressions of the \$100 program called "Visicalc" are given. It has been available for Apple for more than a year and Radio Shack has obtained the rights to market it. BTI also has a couple of reviews, one is a review of MICROCOMPUTER 3D GRAPHICS program for the TRS-80. And a notice about Microsoft's BASIC Compiler says that all shipments had been stopped due to "growing pains" but that a new version 5.3 would be sent free of charge to all registered owners. It is supposed to require less memory to compile program, a serious drawback in the current version.

If you are casually interested in how our floppy disk drives work, find a friend who gets POPULAR ELECTRONICS and read the introduction to floppies in the November issue. Their December issue has a construction article for an inexpensive memory expansion box.

A feature article on modems and a basic comparison chart of them was in the October PERSONAL COMPUTING plus a

stock market program.

SOFTSIDE, which once had an exclusively TRS-80 version, has now combined their TRS-80, Apple, Atari and PROG-80 publications into a single one with a standard magazine appearance. The October issue contained a favorable review of MUMATH, a couple of games and some pretty good info on various TRS-80 subjects.

The October BYTE had a good article about computers in the classroom and inexpensive interfaces for multiple computer connection. Other articles of interest were on sorting with binary trees, information retrieval, and program problem solving.

We are receiving a lot of newsletters from User Groups across the country and a lot of our information is taken from them. We don't usually mention the smaller ones whose contents are mostly of local interest rather than those of our readers. But we appreciate getting them because we find them interesting and it gives us a better feel for what the average group is doing and what information we should be putting in our pages to help them.

Last issue, we reported that OCTUG had apparently died since we stopped getting their newsletter. Well, we are happy to report that we were wrong. The OCTUG newsletter is alive and well again as readers responded to a plea for articles. This newsletter, which is available with a \$10 membership, is about the best club newsletter in the country because they get well written articles and product reviews from all over the country. For example, their November issue had reviews of the Daisy Wheel II, the new version of B17 high speed cassette program, and OS-80. October's reviews were of The Patch, Speak-To-Me-2, and CP/M Handbook. Future reviews will be on Orchestra 80, Radio Shack Vox Box, Interstate Electronic voice recognition system and Typewriter 221, to name a few. These reviews are valuable because they are of recently introduced products. They will help you make a choice on purchases you are interested in making now, not later. The reviews in the big magazines are usually several months old before they get published.

Cincinnati's CINTUG newsletter is just about as good with reviews and tutorials. Their subscription is \$12 a year and a sample issue is \$1.50 from CINTUG, 2311 Maryland Ave., Cincinnati, OH 45204.

In our July issue we included a few byte changes to VTOS 3.0 to make it copyable. We got them out of the MCTUG newsletter from Marin County in California but some of you wrote to say it didn't work. Well, in the latest MCTUG newsletter, they printed a correction. For those of you still wondering, the bytes were correct, but the copy is then done using the VTOS copy command, not the NEWDOS COPY command as stated. In their October issue, a detailed review of SUB LOGIC's T80-FS1 Flight Simulator program was so good it convinced this editor to order one as soon as I finish this page.

Here is a rumor that is possibly too dangerous NOT to spread around. In the 80-COMPUTER USERS OF HOUSTON newsletter, it says that a Model II's video can be literally damaged if you output to port 255 (FF in hex) a value less than 25. If your video goes blank suddenly, accompanied by a high-pitched whine, you have less than 7 seconds to turn the computer off.

LAST MINUTE STUFF

Belonging in the Reader Feedback column is this report of satisfaction with the BASE2 printer owned by a local club member. He says there are several models being sold but the newest and most capable is the 800-b. It can change from one character set to another within a single line, includes software control of line and page spacing, character size, has a large buffer and full graphics. The power supply went out after a week but the factory replaced the board with a new one having better reliability. It is a little slower than some but the print quality is superior and a price around \$650 is a bargain.

A reader who had a difference of opinion with Instant Software regained the rights to his two programs: INTRODUCTION TO PSYCHOLOGY and STRESS (AND HOW TO COPE WITH IT). He has decided to form his own software company, to be called SELF-HELP SOFTWARE and it will sell other people's programs as well and pay royalties. To start things off, he is offering two programs for \$12.95 each. They don't analyze you or anything like that but are more of an enlightenment type of thing. Until November 30, they will only cost \$9.50 each if you mention our TCS newsletter. 3% tax for Iowa residents. PAUL GOEDICKE, 1600 Ave. L, #1, Nevada, IA 50201

HOW FAST WAS IT, JOHNNY?

According to a report by a well known computer club, a recent study concludes that 4 out of 5 Radio Shack store clerks think that "High Speed Graphic Craps" is the name of a new improved laxative.

MODEL II



26-4002
64K 1 Drive
\$3466.00

MODEL III



26-1061 4K I. \$630.00
26-1062 16K III. 900.00
26-1063 32K III
2-Drives, RS232. 2246.00



CENTRONICS

Fast 100 CPS Centronics
730 Printer. \$659.00
Text Quality Centronics
737 Printer. \$819.00

Model II Cobol Compiler
\$360.00
Cobol Run Time Package
\$36.00

DISCOUNT

TRS-80®

DEALER A301

COMPUTER SPECIALISTS

26-1051 4K Level I System. \$424.00
26-1054 4K Level II System. 552.00
26-1145 RS-232 Board. 84.00
26-1140 "O" K Interface. 249.00
26-1141 "16" K Interface. 359.00
26-1142 "32" K Interface. 469.00
26-1160 Mini Disk - Drive O. 419.00
26-1161 Mini Disk - Additional. 419.00
26-1154 Lineprinter II. 699.00
26-1156 Lineprinter III. 1799.00
26-1159 Lineprinter IV. 859.00
26-1104 Factory Upper/Lower
Case Modification Installed. 70.00
26-1506 Scripsit - Tape. 60.00
26-1563 Scripsit - Disk. 79.00
26-1566 Visicalc. 83.00
26-1562 Profile. 72.00

NOTE: Call for availability of VIDEO TEX, Model III, Color,
and other new products.

**ALL OTHER R.S. SOFTWARE
FURNITURE, STANDS, CABLES
AND ACCESSORIES DEDUCT
10% FROM CATALOG PRICE**

Novation Cat Modem. . \$149.00
CCA Data Management
System. 72.00
Adventure Games
Games 1-9 each. 14.00

Pocket Computer

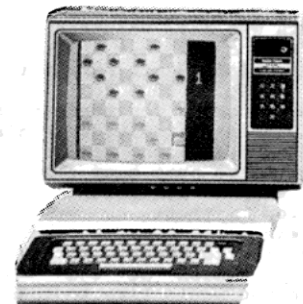


26-3501 1.9K P.C. \$225.00
26-3503 Cassette I/F. 45.00
14-812 Recorder. 72.00

MODEL I



26-1056
16K Level II
System
\$670.00
COLOR



26-3001 4K. \$360.00
26-3002 16K. 540.00
26-3010 Color Video. 360.00
26-1206 Recorder. 54.00
26-3008 Joysticks. 22.50

Acorn
Software
Products, Inc.

GAMES:

Alien Invasion. \$9.00
Stock Market. 9.00
Star Trek. 9.00
Block 'Em. 9.00
Ting-Tong. 9.00

UTILITIES:

System Savers. 14.00
EDUCATION:
Language Teacher. 18.00

**FREE: COMPUTER CATALOG
UPON REQUEST**

1-800-841-0860 Toll Free Order Entry

MICRO MANAGEMENT SYSTEMS, INC.

No Taxes on Out Of
State Shipments

Immediate Shipment
From Stock on Most Items

DOWNTOWN PLAZA SHOPPING CENTER
115 C SECOND AVE. S.W.
CAIRO, GEORGIA 31728
(912) 377-7120 Ga. Phone No.

*TRS-80 is a registered trademark of the Tandy Corp.

R.S. 90 Day Limited Warranty
F-48 Form Provided

**Largest Inventory
In the S.E. U.S.A.**